

Educational Supplement

FRIDAY OCTOBER 18 1987 NUMBER 3720

FIRST PUBLISHED 1910 PRICE 50p

Cultural collision

'One might do worse than take "fundamental rights" and "humanity awareness" as starting principles'



ANNE SOFER

I am always cheered when two very different people find their way from divergent starting points to the same conclusion. My latest experience of this phenomenon has come from reading, consecutively, a book that has been hitting the best-seller lists across the Atlantic, and one that deserves the same accolade when it goes on sale here this month.

The first is a sustained and brilliant harangue from the American academic philosopher, Professor Allan Bloom, intrepidly entitled *The Closing of the American Mind: How Higher Education Has Failed Democracy and Impoverished the Souls of Today's Students*.

It argues that over the past 40 years a climate of moral and intellectual relativism, started in and fostered by the universities, has paralysed the best American thinkers in their search for truth. This relativism, Professor Bloom claims, owes more to Nietzsche than to the tolerance preached by the philosophers who inspired the American founding fathers. It has led to a dangerous situation in which today's students do not necessarily understand or owe allegiance to the democratic principles underpinning American society.

He uses, as an illustration of this argument, the changing perception of minorities. The founders, he claims, saw minorities as "in general bad things, most identical to

factious, selfish groups who have no concern for the common good". However, unlike older political thinkers, the founders believed that only a regime of consensus and tolerance could contain the negative potential of minorities. They "wished to achieve a national majority concerning the fundamental rights and then prevent that majority from using its power to overturn those fundamental rights".

Professor Bloom argues that those who believe in the doctrine of fundamental rights cannot accept a position of being "just another culture". The West's "cultural imperative" is to be "intellectually imperialistic". Plato saw life in a particular society as a kind of life in a cave when compared with the full sunlight of the Truth outside. Similarly, early generations of Americans saw the doctrine of fundamental rights as being beyond, or above, any particular cultural identity.

"By recognizing and accepting man's natural rights, man found a fundamental basis of unity and sameness. Class, race, religion, national origin or culture all disappear or become dim when bathed in the light of natural rights, which give men common interests and make them truly brothers."

It is all stern, aggressive stuff, aimed at putting on the spot anybody with wishy-washy ideas about democracy. The author only gets away with this high-handedness because of the sustained excited pitch of the argument and the breadth of philosophical reading behind it. Professor Bloom comes over as austere, intense, passionately conservative and highly cerebral.

Anybody more different from Dervla Murphy would be hard to find. Here is a middle-aged Irish woman, traveller and writer, single parent and - by her own account - garrulous pub companion. Politically unaligned but exuding small "I" liberalism, she sets out in her latest book *Tales from Two Cities* to explore racial tension in England's cities.

With a journalist's sense of where the action is, she lived for several months around the corner from Ray Honeyford's troubled Bradford school and then in Birmingham's Handsworth district, in the months leading up to the riots. Like a journalist too, her accounts are based on "feel" and anecdote rather than theory and argument. They are also thorough and thoughtful - and essential reading for anyone involved in the "inner cities" debate.

On the face of it, her approach is that of a

classic "cultural relativist". She goes out of her way not only to explain but to justify the custom of arranged marriages in the Pakistani community, and the ganja smoking habit among young Rastafarians. Nor does her own national prejudices prevent her being fair to the English. The same understanding infuses her comments on Ray Honeyford and on the local police forces of both cities.

Yet her conclusions lead her strangely to almost the same place as Professor Allan Bloom - to point out the danger of elevating cultural difference above essential human sameness. "In Britain now, it often seems that Whites (anti-racists no less than racists) are so 'race aware' that they relate to ethnic minorities almost as if they belonged to a different species... The cultivation of 'race awareness' tends to block 'humanity awareness' - to obscure the simple, central and immutable reality that we are all human beings."

Neither of these books is directly about schools - and yet I have found them both more helpful than many that are. In the arguments about the national curriculum that are looming over us, between the anti-racists on one side and the "British culture for British schools" lobby on the other, one might do worse than take both "fundamental rights" and "humanity awareness" as starting principles.

The Closing of the American Mind is published by Simon and Shuster, price £14.95. *Tales from Two Cities* is published by John Murray, price £12.95.

NEXT WEEK Teachers' pay

How the new advisory committees will work. Jeremy Sutcliffe reports

Brain power

Anthony Clare reviews the Oxford Companion to the Mind

Extra: Computers in education

Newham's Muslims urged to go-it-alone

by Bert Lodge

The founder of the first Islamic day school in London is campaigning for five grant-maintained Muslim schools to be set up in Newham once the Government's opt-out proposals become law.

Mr Haji Mulkhar Ahmad, head of the London School of Islam in Forest Gate, believes that local authority schools with a predominantly or wholly Asian roll should opt for grant-maintained status.

In a letter to the Education Secretary, Mr Ahmad lists two secondary schools, Plashet (girls), East Ham, and Trinity (boys), Canning Town, and three primary schools which fall into that category.

A spokeswoman for the borough council confirmed that 40 per cent of Newham pupils came from ethnic minorities and that at Plashet Girls' School the proportion was 80 per cent. Trinity Boys' School is due to be closed next August.

Baker's Bill, pages 12 and 13

Although the question of opting out will be left to the parents of each school concerned, such a move would inevitably be resisted by the Labour-controlled council which is opposed to any new denominational school being set up.

Whether any county school gaining grant-aided status could at the same time convert unofficially into a denominational school under the present proposals is unclear. The ambiguity was spotted by the Church of England schools secretary, Mr Geoffrey Duncan, in his response to the Government's consultative document.

In issuing his call for grant-maintained Muslim schools, Mr Ahmad would inevitably be seen as a standard-bearer for the Muslim community.

Instead of the laborious route to achieving voluntary aided status - still requiring the school to find 15 per cent of the running costs - he is encouraging all schools with a predominantly Asian enrolment to go for grant-maintained status. Whatever the law says, it would be difficult for the ethos of such a school to be anything but that of Islam.

Meanwhile, Mr David Hart, general secretary of the National Association of Head Teachers, has urged heads to think twice about opting out of local authority control without financial backing from parents.

"I do not think enough people have given enough thought to the financial implications of opting out," he said.

His advice follows the announcement by Mr John Swallow, a former NAHT president, that his school - One Community in Essex - is planning to opt out and seek grant-maintained status. The school is threatened with closure.



Abney hall: more than 1,500 Welsh primary schoolchildren learned about the monastic life of the Middle Ages at Neath Abbey last week

ILEA magnet schools could divide Labour

by Barry Huggill

The Inner London Education Authority is set to become the first in the country to introduce American-style magnet schools.

Within two years, the capital could have schools specializing in either the arts, languages, technology or science and maths.

Entry to the schools, likely to be designated "centres of excellence", will be determined by the interest shown in the specialist subject by pupils and their parents. There will be no formal academic entrance requirements and the co-educational schools will maintain a mixed-ability intake.

The magnets will be spread across the existing school sites. Closure notices will be served on the present schools. It is not clear whether the new schools would retain the old name.

The blueprint for centres of excellence has been drawn up by Mr David Mallen, ILEA's head of schools, who has worked closely with Dr Bill Stubbs, the authority's chief officer.

Mr Mallen stressed this week that the blueprint "had no official status". He said that he had not discussed it with ILEA politicians.

Mr Neil Fletcher, the ILEA leader,



David Mallen drew up blueprint

is a supporter of magnet schools and will give his backing to the plan. It will be publicly discussed for the first time at a meeting of the policy co-ordinating committee later this month.

Mr Fletcher will face hostile questioning from a number of Labour councillors at a meeting of the ILEA Labour group on Monday evening.

Critics are worried that magnets will mean a re-introduction of selection, in the name of one councillor, "a return to the old grammar school system". Mr Mallen is aware that controversy

will surround his proposal. He says that "selection" is an emotive word, but accepts that "there needs to be a lot of discussion about the admissions procedures that we develop".

At the Labour Party conference in Brighton a fortnight ago Mr Fletcher caused a furore when he suggested work from Mrs Angela Rumbold, Labour's spokeswoman for the American schools. He was speaking only a few days after Mr Kenneth Baker had returned from a fact-finding trip to the USA to see how magnets work. The Minister declared himself "very impressed" with what he saw.

The ILEA leader also questioned whether mixed-ability teaching worked, raised doubts about progressive teaching methods and suggested that a return to basics and rote learning might be in the best interests of working-class children.

He believes that the ILEA should be providing extra resources for children in the most deprived areas and for those with special gifts. His opponents in the Labour group believe he is signalling the introduction of schools for the academically able. Mr Fletcher insists that he is not challenging the comprehensive system nor trying to steal Mr Baker's clothes.

Resist reform passively - heads told

by Sarah Bayliss

The president of the country's largest headteachers' union will this weekend be urging its national council to support a call for "passive resistance" to the Government's education reforms.

Mr Michael Pipes, president of the National Association of Head Teachers, received an enthusiastic response for his strategy at a weekend conference of headteachers that had been given the first detailed glimpse of how the proposed system of national tests would work from Mrs Angela Rumbold, Minister for State for Education. He said later that such a move by headteachers would prevent the momentum of change building up.

Mrs Rumbold, told the union's annual primary conference in Coventry that parents of 7 and 11-year-olds would be able to compare their children's results to mathematics, science, English and the foundation subjects with average results for the class, school, local authority and the nation.

Her speech came only two days after the Education Secretary had sought to allay fears that his proposed national curriculum was "too prescriptive".

Interviewed on *This Week* by Mr Jonathan Dimbleby, Mr Kenneth Baker went out of his way to stress that the lower limit of the time to be set aside in schools for the foundation subjects was 80 per cent.

NAHT conference report, page 10

NOTICEBOARD

PEOPLE

Peter Fowler has been appointed co-ordinator for special educational needs at the Microelectronics Education Support Unit, in succession to Mary Hope. He is currently co-ordinating the Council for Educational Technology project on information technology and FE students with moderate learning difficulties.

Abel Orme has been appointed artistic director of Watford Palace's theatre-in-education company. Erna Dyka has succeeded Frank Peckley as chairman of the National University of the Third Age committee.

CONFERENCES

October 13, 14, 22 and 23 Southern Exemining Group regional conferences on the Record of Mathematical Achievement in Kingston upon Thames (13), Cambridge (14), Birmingham (22) and Manchester (23). Details from Pauline Harvey, SEG, 0892 3531 ext 228.

October 17 Education in and about Namibia organized by the British Defence and Aid Fund for Southern Africa at Hermon House, London WC1. Speakers include Nahas Angula, SWAPO secretary for education and culture. Details from BDAF, Namibia Conference, 64 Essex Road, London N1 8LR.

October 17 Innovation and change National Association of Design Education conference - design-based activities across the curriculum at Heywards 1, sixth-form college, Fe 57 (25 students).

Details from Richard Molynaux at the college, 0444 456 281.

October 17 Choosing a degree in art and design history for sixth-formers at North Westminster Community School, London W2, from 11 am to 4 pm organized by the students group of the Association of Art Historians. Universities, polytechnics and colleges offering degree courses in art and design history will be represented.

October 22-23 Council for Environmental Education annual conference on Encouraging positive attitudes towards the urban environment at the IBM South Bank office, London SE1. Fee £35 (£45 residential). Details from the organizer, CEE, School of Education, University of Reading, London Road, Reading RG1 5AQ.

October 29 The community college ideal at Park Lane College, Leeds with Las Kotke, David Eade and Mike Taylor on the relevance of the American community college experience to post-16 education in the UK. Details from Mr M. O'Leary, Education Reorganization Unit, Meriton House, Leeds LS2 8DT.

October 30 Further education - the responsive service organized by the Association of Vice-Principals of Colleges of Filton Technical College, Bristol with David Parks and Ernest Theodorescu. Details from I M Strachan, Cassio College, Langley Road, Watford WD1 3RH. 0923 240311 ext 40.

November 3 Career planning for women and its place in a careers programme

for advisers in schools, FE and HE and local authorities with Beryl Morris and Cathy Berezniak at the Industrial Society. Details from the Peppercorn Unit, 48 Bayswater Square, London W1H 7LN.

COURSES

October 30 - November 1, November 4 - 8 and 11-13 Special Society courses: the first on the hand as a guide to learning for those working with young children with cerebral palsy or a similar disability; the second on music, art and drama for those working with children and adolescents with special needs and the third for teachers of young children with severe learning problems. Details from Castle Priory College, Thames Street, Wallingford.

October 31 and November 28 Farming and the countryside: resources for learning with special reference to GCSE organized by the Association of Agriculture for secondary teachers. The first in London and the second in Bedford. Fee £7.50. Details from Jack Whelan, Association of Agriculture, Victoria Chambers, 16/20 Stratford Ground, London SW1P 2HP.

November 2, 3 and 5 One-day courses for GCSE teachers of the Imperial War Museum relating to the First World War. Speakers include Chris Culpin, chief examiner for the London and East Anglian Group, and there will be opportunities for gallery work. Fee £4.50. Details from the Schools' Officer, Imperial War Museum, Lambeth Road, London SE1 6HZ.

No 326 CROSSWORD by Rufus

EVENTS

October 14-16 Surrey primary schools art exhibition in the Dorling Halls, Dorking, from 10 am to 9 pm (October 14, 15) and 10 am to 2 pm (October 16).

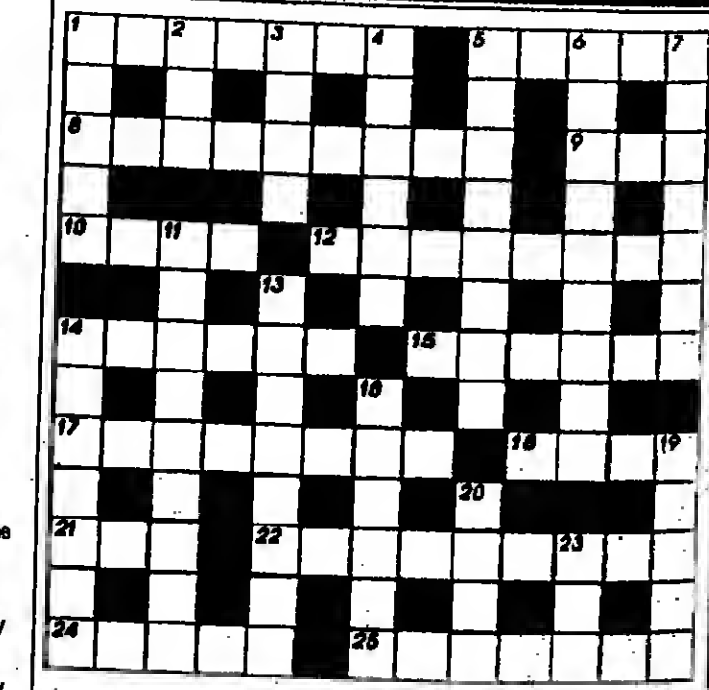
Until October 23 Constance and Louise Gwent Theatre in Education Company's programme for fifth and sixth-formers at the Drama Centre, Abergavenny. Details of this and other performances for schools from Julie Davies, Abergavenny 3167.

October 20 and 29 Musical evenings at the Royal Academy of Arts performed by advanced students from the Guildhall School of Music and Drama at 7 pm. Tickets £5 from the Friends' Room, Royal Academy, London W1. 01-754 9052.

October 28 Courtland Institute of Art open day for teachers and prospective undergraduates. Those wishing to attend should contact the Registry at the Institute, 20 Portman Square, London W1H 0BE by October 16.

INFORMATION

16-19 Mr Brendan Mulcahy, sixth-form curriculum enrichment co-ordinator for Northamptonshire, would like to receive information on local education authorities' school-based or individual initiatives in the 16-19 age range. He can be contacted at the University Centre, Barrack Road, Northampton NN2 6AF. 0604-280185.



Across

- 1 Hoped to rise from despair (7)
- 5 Managers' investments (5)
- 8 Fair distribution of beer to all (9)
- 9 Bio-chemistry for a Nigerian tribesman (7)
- 10 An inexperienced youth could be fired (4)
- 12 Useful people showing diplomacy in studying (8)
- 14 A capital fighting machine (6)
- 18 He shoots a bird right in the tail (6)
- 17 Blot, show - seen as a sign of weakness (8)
- 18 On the staff (4)
- 21 Little swimmer that can also do the crawl (3)

Down

- 1 Athenian room at the top (3)
- 2 Wash up for a friend (6)
- 3 Excellent yet not well done (4)
- 4 Bill isn't paid by him (6)
- 5 Cribbing right can be in trouble (8)
- 6 Headmaster (5)
- 7 Contrasting notes in a truck promoter (7)
- 11 It is held to improve the eyesight (9)

Solutions to puzzle 325

- 1 Down
- 2 Down
- 3 Down
- 4 Down
- 5 Down
- 6 Down
- 7 Down
- 8 Down
- 9 Down
- 10 Down
- 11 Down
- 12 Down
- 13 Down
- 14 Down
- 15 Down
- 16 Down
- 17 Down
- 18 Down
- 19 Down
- 20 Down
- 21 Down
- 22 Down
- 23 Down
- 24 Down
- 25 Down
- 26 Down
- 27 Down
- 28 Down
- 29 Down
- 30 Down
- 31 Down
- 32 Down
- 33 Down
- 34 Down
- 35 Down
- 36 Down
- 37 Down
- 38 Down
- 39 Down
- 40 Down
- 41 Down
- 42 Down
- 43 Down
- 44 Down
- 45 Down
- 46 Down
- 47 Down
- 48 Down
- 49 Down
- 50 Down
- 51 Down
- 52 Down
- 53 Down
- 54 Down
- 55 Down
- 56 Down
- 57 Down
- 58 Down
- 59 Down
- 60 Down
- 61 Down
- 62 Down
- 63 Down
- 64 Down
- 65 Down
- 66 Down
- 67 Down
- 68 Down
- 69 Down
- 70 Down
- 71 Down
- 72 Down
- 73 Down
- 74 Down
- 75 Down
- 76 Down
- 77 Down
- 78 Down
- 79 Down
- 80 Down
- 81 Down
- 82 Down
- 83 Down
- 84 Down
- 85 Down
- 86 Down
- 87 Down
- 88 Down
- 89 Down
- 90 Down
- 91 Down
- 92 Down
- 93 Down
- 94 Down
- 95 Down
- 96 Down
- 97 Down
- 98 Down
- 99 Down
- 100 Down

THIS WEEK

- | | |
|--------------------|--------|
| COMMENT | 2 |
| DIARY | 10, 11 |
| PRIMARY | 15 |
| SCHOOL TO WORK | 16, 17 |
| NEWSFOCUS | 18, 19 |
| OVERSEAS NEWS | 20, 21 |
| LETTERS | 22 |
| TALKBACK | 23 |
| TECHNICAL | 24 |
| REVIEWS/BOOKS/ARTS | 25-26 |
| RESEARCH/EDUCATION | 27-28 |
| PERSONAL COLUMN | 29-30 |
| NOTICEBOARD | 31-32 |
| CROSSWORD | 33 |
| CLASSIFIED | 34 |



Entry fee to be paid



What Mrs Thatcher said



Teenage mothers



Quest for standards



The art of looking



20

LONDON NEEDS A VIABLE PLAN

Dr Bill Stubbs's stark advice for ILEA members on the consequences of the Government's proposal to allow London boroughs to opt out (page 13) makes far more logical sense than the consultation document itself. Since that was the least coherent and thought-through of all the recent hatch of pre-Education Bill documents, this is not in itself surprising, but that does not alter the force of Dr Stubbs's argument.

There is nothing in the consultation paper itself, nor in any of the statements of intent by boroughs ambitious for I.e.a. status, which demonstrates how the arrangements proposed would either raise standards or save money, the two criteria by which the document cursorily dismisses ILEA out of viable existence.

On the contrary, the more closely the proposals are examined, the more plain it becomes that nobody has any idea how, or even whether, spending levels can be cut; how brand new services can be brought into being with the back-up and know-how to improve quality in the opted-out boroughs (let alone the remainder); and not least, how all this can be achieved in the time allowed and under the pressures of the organizational turmoil involved.

Even if the Government's criticisms of the ILEA's efforts "to tackle the root causes of its educational and financial problems" were held to be valid, Dr Stubbs's analysis points straight to the inadequate, haphazard nature of the proposed remedy.

The inherent flaw is that at the first round it will only be the political interest which determines which boroughs seek to go it alone, and not any of the other factors of size, geography or social coherence, which ought normally to determine the boundaries of a local education authority. The thrust of the document is provided by the Prime Minister's own

political will, in response to the gut instincts of local Tory politicians, who want to get ILEA's precepting and ideological imperatives off their backs.

Of these, Wandsworth and Westminster are of a population size to justify independent status on a par with the outer London boroughs, but Kensington and Chelsea—a merged hybrid with no real heart and precious few schools—would be one of the smallest I.e.a.s in the land with a school population of only around 10,000.

In any case, that is only part of the story. The community charge and the redistribution of the business rate will create an entirely different budgeting framework. Other boroughs may be forced by demographic and financial knock-on effects—though not for educational reasons—to reconsider their position.

So the educational viability of what remains of the ILEA will be uncertain, depending indefinitely on which of a number of possible scenarios is played out. The ILEA rump may not make much sense in the light of most of them. In any event, a high proportion of London children cross borough boundaries to go to school, and special schooling and further, higher and adult education are provided on a London-wide basis. That has always been one of the arguments which previous inquiries have found most convincing and prompted repeated verdicts in favour of a unitary authority.

Dr Stubbs's conclusion is that it would be better to have yet another inquiry into the ILEA's performance, which might well decide to hand power to the boroughs, or groups of boroughs, but which would at least be able to carve up the corpse of the authority on a sound educational basis.

ILEA members accepted his advice (though they also had their own reasons for postponing a break-up

decision, as the Conservatives in opposition pointed out), but Mr Kenneth Baker immediately turned it down flat. By today, however, he is due to have all the responses to his consultation paper and they are certainly not likely to be universally approving. The break-up of the ILEA is also expected to get a bumpy passage through the Lords, and after that the opting-out boroughs will have a race against time and obstacles to get any sort of education service in place on cue, let alone a quality model that can convince parents of its ability to raise standards.

At present, most London parents would agree that secondary standards and examination results are far from good enough, in spite of improvements and the well-researched league tables which show the ILEA around the average mark. They would probably endorse the common complaint about the size, remoteness and clumsiness of the bureaucracy.

But it will hardly satisfy these parents or help their children if the authority is broken up into something worse, rather than something better. What is threatened at present may provide greater responsiveness in self-selected areas, but uplappable constraints elsewhere. What a way to ruin no education service!

Planning blight is already a reality. It is difficult to make sense of the tertiary review without knowing which boroughs will be in or out, although sensible 16-19 reorganization is urgently needed before A level results can be jacked-up. Maybe the ILEA left it too late, and maybe the 11th-hour interest in controversial centres of excellence will be sunk by its timing too.

What is beyond doubt is that if the ILEA is to go, there are far better alternatives than the Government proposes.



administration. The paragraphs on testing in the curriculum discussion paper, with their deliberate contradictions and non-sequiturs, seem to have resulted from internal stresses within the Government—Mrs Thatcher's desire for tough prescription, and the awareness of Mr Baker (and the DES) of the limitations of such an approach. What has been clear all along is that the teachers would have the last word. Neither Mrs Thatcher nor Mr Baker (nor yet the assembled battalions of their bureaucrats) can take over from the teachers in the classroom. Heads know they can use their collective strength (if they choose to do so) to insist that the more arduous consequences of the testing obsession are avoided.

THE THATCHER ANALYSIS

"Our most important task in this Parliament is to raise the quality of education. It is the national interest. And it is in the individual interest of every parent and above all, of every child. We want education to be part of the answer to Britain's problems, not part of the cause."

With these brave words, Mrs Thatcher opened the education section of her "presidential" address to the Conservative party conference, last week. They will be warmly endorsed by all who work in the education service. The Conservatives have pushed this topic to the top of the agenda. This is what the educators have

always asked for. They cannot complain now it's getting hot in the kitchen.

But they can complain at the intellectually disreputable way in which Mrs Thatcher continued. "Children who need to be able to count and multiply are learning anti-racist mathematics... whatever that may be. Children who need to be able to express themselves in clear English are being taught political slogans. Children who need to be taught to respect traditional moral values are being taught that they have an inalienable right to be gay."

It must be conceded that in contrast to the Conservative Party conference, as in lapidary inscriptions, nobody is on oath. But it is not unreasonable to expect more rigorous standards of truth from a former Secretary of State for Education.

How many classes are there in session this Friday morning? A quarter of a million or thereabouts? And in just how many does Mrs T seriously believe children are being taught "anti-racist" maths, political slogans and the virtues of homosexuality?

If her policy were really based on nothing more than malicious, sensational, little-tattle we really would be in a mess. Do the Prime Minister's advisers have no idea of the irritation—anger—which this kind of twaddle causes among teachers and educational administrators, including the 25-35 per cent of them who are prepared to vote for her Party?

Sooner or later, Mr Baker has to try to win the respect of the educators for the programme his party is pushing through. This is going to be difficult: enough without Mrs Thatcher's insults.

Second opinion

MORE THAN JUST TO FIND A JOB

Last week's report that Sir Rhodes Boyson is to call for the school-leaving age to be lowered to 14, gives us cause to be concerned for the well-being of Mr Baker, the Secretary of State for Education. Voltaire was reputed to have said that he could cope with his enemies but asked for the intervention of a more supernatural being to deal with his friends. I have the feeling that Mr Baker is finding himself in a similar position.

In the halcyon days, when jobs were two-a-penny, our youngsters' attitude was that school was irrelevant and unnecessary. "What does it matter. There are many jobs around and I am sure to get one whether or not I do well at school," was a fairly typical remark.

While the attitude of many remains unchanged the reason advanced is different. "What is the point of attending school when at the end of it all I will be jobless?" is a familiar cry. This makes me worry about how youngsters influenced by the policies like Sir Rhodes propound.

Asking for the school-leaving age to be lowered to 14 will confirm the sense of failure of many young people. We need to go back to first principles and look into the rationale for our educational system. Without becoming too philosophical, I suggest that the purpose of education is more than just to find a job.

We are repeatedly being asked to focus on how well our competitors are doing compared to us—especially where education is concerned. "Look at West Germany," we are urged. So I do, and what do I find? A nation in which young people are encouraged to aspire to great heights; to value education, whether or not they are top of the class; to understand that effort is more important than achievement and that the process is at least as important as the ends to which they aspire.

If school for many 11-year-olds is a five-year sentence, should they be allowed to leave at 14, or should schools looking at their pupils and examine closely the curriculum being offered to ensure that there is breadth, balance and relevance; that there is sufficient differentiation to take account of varying needs and talents; and that the curriculum progresses logically in terms of concepts and skills?

We have raised the school-leaving age over the last century from 14 to 15 to 16. As if all the frenetic activity to improve the quality of education is not enough. Sir Rhodes is now on the verge of suggesting that the hands of the clock of history be put back yet again.

If we are to keep pace with our competitors, we have to understand that our greatest resources are the young people in our schools and colleges. Devising strategies to develop and exploit their knowledge, talents and skills will help us march boldly into the 21st century. Lowering the school-leaving age and thereby ignoring what they have to offer, I submit, is one sure way of moving firmly "back to the future".

David Sassoon

David Sassoon is acting education officer (schools) in Brent, but the views expressed are his own.

NO COMMENT

"Appointments: Dr X... has been awarded a year's sabbatical leave from Middlesex Polytechnic to complete a book on multiple personality. However, he will continue in his post as seasonal/senior clinical psychologist at Princess Alexandra Hospital, Harrow."

From the Bulletin of the British Psychological Society, September 1987.

Cambridgeshire's local financial management scheme runs into teacher-union opposition

Cutting the cake after a quick head count

by Linda Blackburne

A controversial method of allocating money to secondary schools to control their own budgets is to be introduced in Cambridgeshire, despite the opposition of four teacher unions.

The county has been one of the pioneers of local financial management in this country. But until this week it had not settled on a long-term method of apportioning money to schools.

Up until now, schools have been paid according to the number of pupils on roll, but education department officers devised another method which takes into account the theoretical number of teachers needed by a school.

The second formula has also been supported by the Labour members of the education committee and co-opted teacher members.

But at Tuesday's committee meeting they were outvoted by the Conservative and Alliance groups who favour the pupil numbers formula. It will now be "piled up" and used to distribute cash to the county's 46 secondary schools from next April.

Mr Robert James, one of the chief instigators of Cambridgeshire's pilot scheme—which became a model for the Government proposal to extend LFM to all L.e.a.s.—said after the meeting, "superficially the officers' scheme looks as if it is more closely related to educational philosophy but I think it is basically flawed. It is a formula which was originally produced for working out a teacher budget for the county council."

"The pilot schools are raising no questions about the system we favour. But it is obviously difficult for people new to the whole thing and there is a lot of misunderstanding flying around."

Mr Mark Slater, Cambridgeshire spokesman for the National Union of Teachers, said the chosen scheme, which is known as the AWPJ formula (Age-Weighted Pupil Units), was being brought in too quickly. He feared schools would receive their budget figures too late for them to do a proper job in April.

"We have been hounded into an inferior scheme purely because it will be slightly easier to implement," said Mr Slater, one of the teacher representatives on the education committee.

The county convenor for the Secondary Heads Association, Mr John Heywood, warden of Linton Village College, said: "There is not a consensus by any means. But it is fair to say that the majority of members think the other model, the Organization-Based Staffing (OBS) system, offers schools the best opportunity to plan ahead in terms of having a curriculum."

"The pupils' unit method is too crude. It does not take sufficient account of the individual needs of schools and we feel the government and heads will be given a lump sum and told there is adequate staffing, adequate support staff, adequate capitalization and resources for examination fees. 'Get on and solve the problems,'" said Mr Heywood, whose views are supported by the Assistant Masters and Mistresses Association and the National Association of Head Teachers.

Mr James, a Conservative, attempted to introduce LFM in 1974 to increase governors' decision-making powers but the idea was shelved until 1980 because of computer/accountancy problems.

By 1982, six Cambridgeshire secondary schools and one primary had been chosen for an LFM pilot scheme. The aim was to improve the quality of education through delegating power to heads and governors. The scheme gave

them responsibility for 75 per cent of the school budget—up to £1½ million each—and covered wages and salaries, capitalization, heating, lighting, and lettings income. The local education authority retained control over the remaining 25 per cent, which included pensions, major repairs, buildings, debt charges and school transport. In the past, schools had been used to having some control over only 5 per cent of their budget.

In March 1986, LFM was introduced into all the county's secondaries and in 10 more primaries.

LFM was welcomed by most of the teaching profession as sound but there were many reservations and some teachers feared the system might be abused.

The county's LFM project leader, Mr Duval Hill, who gave up the headship of Sir Henry Smith Community College to take the job, said LFM had improved the college's third and fourth-year curriculum, helped to set up a special needs department and provide an extra £4,000 for books.

Another head involved in the pilot, Mr Peter Downes of Hinchingbrooke Secondary, said repairs were carried out more efficiently. And Mr John Slater, then acting warden at Cornburn Village College, said he was able to afford an extra half a teacher and two additional nursery staff.

Cambridgeshire claimed from the outset that LFM was not meant to be a cost-cutting exercise. But it hoped savings could be made from greater efficiency in the education department in the long term.

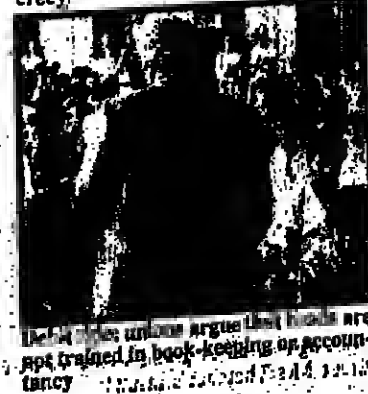
The scheme's external assessor, Mr Tyrrell Burgess, a reader in the philosophy of such institutions in North East London Polytechnic, said heads had become better educational managers because of their management of finance.

But the teaching unions, though welcoming LFM in principle, had grave doubts. Heads were being turned into book-keepers and accountants for which they had had no formal training, they complained.

Former NAHT president Mr Mike Brighouse, Great Heath county primary head, said the scheme had been introduced after years of cutbacks and heads were now bearing the brunt of the shortages rather than the officials.

And Mr Tom Eargh, principal of Parkside Community College, complained of the "lamentably low" levels of ancillary staff. "We are being made to run like industries although our resources are laughable in comparison," he said.

The National Union of Teachers feared some power-mad heads might spend valuable money on hare-brained schemes to the detriment of teaching staff. It also feared that inadequate training would lead to governing bodies rubber stamping schemes which only a few active governors and the head had thought through. This, said the union, destroyed the Education Secretary's claims to increase democracy.



Teachers and school officials are arguing over the new financial management scheme.

NEWS



Strain to gain: Pupils at Hall Green School, Birmingham, held a sponsored exercise session to raise money for a turbo chair for the school's physically handicapped children to use.

Union bids for 15.5% 'Houghton' pay award

by Jeremy Sutcliffe

The National Association of Schoolmasters/Union of Women Teachers is demanding pay increases for all teachers of up to 15.5 per cent.

The claim, the first to be submitted by 11 teachers' unions for next year, is based on a rise in line with average earnings for non-manual workers, expected to be 8 per cent, plus a 7.5 per cent increase, as the first step towards a return to pay levels set by the Houghton inquiry in the mid-1970s.

The union is to press for salaries for graduates with two years' teaching experience to be linked to average earnings for non-manual workers, giving a graduate in the third year of teaching £11,470.

Classroom teachers on the top of the main scale should receive salaries of £19,000, bringing them roughly into line with maxima in other professions. The maximum for teachers with

extra responsibilities should increase to £22,900, raising them to the level of most scientists and engineers, but below senior office managers and personal officers, says the union.

The claim, set up earlier this year by the Education Secretary Mr Kenneth Baker to replace the Burnham pay negotiating committee.

The union will ask the committee to relate teachers' pay to that of other professionals and to take account of improved qualifications, increased responsibilities, greater pressures linked with pupil behaviour, and low morale.

Mr Fred Smith, the general secretary of the NASUWT, said the union was ready to conduct negotiations "across the street". "Teachers' associations may temporarily have lost the right to negotiate for their members, but the NASUWT has not lost the right nor the will to fight for its members' interests," he said.

Mr Nigel de Gruchy, deputy general secretary, said he ruled out "if teachers' grievances were not resolved. The union would also be watching carefully to ensure the interim committee did not delay its deliberations, he said.

The union warns that the gains made from the deal imposed by Mr Baker earlier this year, which have brought a 5 per cent improvement over and above rises in average non-manual earnings over the last three years, could quickly be eroded by an imposed settlement.

The other main teachers' unions have yet to draw up their pay claims for next year.

Move to reopen GTC talks

by Bert Lodge

An approach may be made soon to the National Association of Schoolmasters/Union of Women Teachers, asking it to rejoin the negotiations to set up a General Teaching Council.

The gesture would come from the Universities Council for the Education of Teachers, the "overseeing" body for the council, which has been in a standstill since February when the NASUWT pulled out.

Two senior members of UCET, Professor Alec Ross of Lancaster Uni-

versity and Mr John Sayer, research fellow at the London Institute of Education, are expected to ask the union to rejoin the 16 teacher organizations and interested bodies.

When negotiations broke off, Mr Nigel de Gruchy, deputy general secretary, said the union was mistrustful of Government attitudes to the public sector, to teachers in particular, and to the role of trade unions. The decision was ratified at the union's annual conference.

WHY IS AMMA THE FASTEST GROWING TEACHERS' UNION?

1 EXPERT ADVISORY SERVICES

AMMA provides expert help and guidance to all members on all aspects of their professional lives. Advice and support is always given in complete confidence and free of charge.

As an AMMA member you will have free access to a team of full-time legal officials. Every year they help hundreds of members resolve problems both minor and serious.

2 COMPREHENSIVE INFORMATION

AMMA places great emphasis on the quality of its communications with members.

Every member receives a free copy of 'Report', AMMA's magazine, with informative and stimulating articles and views on professional matters, regular bulletins and frequent publications.

3 EXTENSIVE INSURANCE COVER

AMMA provides an unrivalled package of automatic free insurance benefits.

4 DEMOCRATIC REPRESENTATION

AMMA is an open, democratic organisation run by teachers for teachers. All decisions are taken by elected members or secret ballot.

JOIN NOW AND PAY ONLY £26.00 TO COVER MEMBERSHIP THROUGH TO 31ST DECEMBER 1988.

See your School/College representative for details or write to: Assistant Masters and Mistresses Association, 7 Northumberland Street London WC2 Tel: 01-930 6441.



LOOKING AFTER YOUR INTERESTS

The impact of the teachers' new contract – which came into effect at the beginning of this term – is beginning to be felt in schools.



Heads seen reluctant to direct teachers to take Saturday games

Time-keeping dispute puts Saturday sport in doubt

by Bert Lodge

A disagreement over the way to account for a teacher's working time on a Saturday morning within the new conditions of employment could affect weekend school sports fixtures.

The dispute concerns the requirement that teachers shall be available to work 1,265 hours over 195 days a year. A discrepancy emerged when most heads were seen to be reluctant to direct teachers to take Saturday games because to do so would bite into the hours allocation for the year. The Council of Local Education Authorities then exacerbated the situation by maintaining heads who direct a teacher to work on a Saturday morning should count the time as one of the 195 days.

"Hours don't come into it," Mr Ivor Widdison, principal administrative assistant of CLEA, said this week. "Once a teacher has been directed, even if it's only to take a Saturday

morning game, then that counts as one of his obligatory days."

But Mr David Hart, general secretary of the National Association of Head Teachers, challenged CLEA. "Certainly if a head wishes to direct time on a Saturday, and the teacher accepts it, then that is directed time against the 1,265 hours. But we don't accept that it counts as a statutory day. Moreover, the NAHT has grave doubts whether a head can require a teacher to work on a Saturday at all."

So far, little evidence has been shown that school sport has been affected by the new conditions of employment, although Mr Peter Beldwin, NAHT council member for Lancashire, said this week that some districts in his area had been affected. "Some teachers are following their union's instructions."

Contract hours could discriminate

by Diane Spencer

The National Union of Teachers may carry out an inquiry next term to find out whether the Government's new contract on teaching hours and duties has a discriminatory effect on women.

Mr Graham Clayton, the NUT's solicitor, said the union's advisory committee on equal opportunities has been finding examples of women members who are placed at a disadvantage by the contract.

Part-time, those returning to work after a career break to have children, and women with dependent relatives are particularly hard hit, now that they can be directed to attend out-of-hours meetings.

The National Association of Schoolmasters/Union of Women Teachers has heard similar complaints. Mr Nigel de Gruchy, deputy general secretary of the union, said the problem was highlighted last week at a meeting of negotiating secretaries. "It was inevitable, we foresaw this when the contract was published," he added.

One London member of the NAS/

UWT has already resigned, Mrs Julie Lancelotte, the former union representative at John Roan School in Greenwich, said: "I was, of course, willing to mark and prepare lessons in the evening, but I was not prepared to stay any longer at school to attend meetings. My kids go to bed at six."

Ms Anne Kinleysides, a middle school teacher in Leicester, a member of the NUT's equal opportunities advisory committee, thought that some heads were using the contract inflexibly, which made life difficult for women who had returned to teaching.

She said it was ironic that the contract was working against the national trend: other professions and industry were encouraging women back to jobs by offering flexible hours and improved child-care facilities.

The National Association of Head Teachers, in marked contrast, has had only one inquiry from a head with one staff member who had difficulties with child-minding.

Filling timesheets lacks professionalism – PAT

by Jeremy Sutcliffe

The non-striking Professional Association of Teachers is taking industrial action – but all in the name of "moderation and professionalism".

The union's deputy general secretary, Dr David Jones, has sent letters to its members in Birmingham urging them to refuse to fill in timesheets that are being distributed by the local education authority.

The I.C.A. has taken the step in response to the new teachers' contract, which requires teachers to work a minimum 1,265 hours a year. Both the National Union of Teachers and the National Association of Schoolmasters/Union of Women Teachers have

already issued timesheets to their members, as part of their work-to-rule campaign.

Birmingham's move has been welcomed by local NAS/UWT leaders, who say the I.C.A. is asking teachers to do no more than they were already doing: filling their own union's timesheets.

But PAT has dug in its heels. "We must express our view moderately and professionally, but our stance is that we do not accept that teachers must fill in timesheets," said Dr Jones.

The union insists the 1,265 hours is a legal minimum, but a professional minimum requirement.

Baker goes ahead on vocational exam move

by Sue Surkes

The Education Secretary took steps this week to further centralize control of the curriculum by asking the Secondary Examinations Council to approve all vocationally-oriented public exam courses offered to 14 to 16-year-olds against national criteria.

Some of the criteria may have to be revised as soon as they are introduced because they were drawn up before the Government announced its national curriculum proposals.

But Mr Kenneth Baker this week overrode SEC advice to consider further the criteria for approving what are to be called integrated (or multi-subject) courses in the light of the national curriculum plans.

In a letter to Sir Wilfred Cockcroft, chairman and chief executive of the SEC, the Education Secretary said it would be some time before attainment targets and programmes of study for all the foundation subjects were in place, although it was intended that those for maths and science would be introduced in 1989.

"The Government therefore, believes that the criteria as drafted provide a valuable, albeit interim, standard against which the SEC can approve and monitor integrated courses offered in schools from September 1988."

"We would like you to proceed on this basis and, in due course, will look to your council – or its successor body – to offer advice about the more permanent form that these criteria should take."

The interim arrangements, which

will apply to all courses, not only new ones, available from next September, are not enforceable by law.

They arise from the recommendations of a working party announced in the Government White Paper, *Better Schools*, and chaired by Mr Stuart Johnson, director of education for Leeds. The City and Guilds of London Institute, the Business and Technician Education Council and the Royal Society of Arts were represented.

The SEC based its advice to Mr Baker on the working party report, completed in June 1986, taking into account the consultation that followed. But Mr Baker's reluctance to hang fire this week will be seen in some quarters as a bid to pre-empt the proposal in the national curriculum consultation document to "put the approval of syllabuses for GCSE and other exams needed during compulsory schooling onto a statutory basis."

The SEC, which is already in charge of approving GCSE syllabuses for this age group, now faces the task of approving all single-subject courses against existing GCSE criteria and all integrated courses against new criteria. Integrated courses will also have to take account of GCSE subject criteria in English, maths and science.

Mr Keith Weller, principal professional officer for the SEC, did not expect courses offered this year to change radically next year as a result of the approval process. The relevant boards were involved in the development of the criteria and commented on the draft Johnson report, he said.

EOC wins grammar test case

The Equal Opportunities Commission won a test case in the High Court this week when the judge declared that Birmingham City Council had unlawfully discriminated against girls by providing nearly twice as many grammar school places for boys. This was the first time the Commission had applied for a judicial review.

Mr David Pannick, for the Commission, argued in the two-day hearing last week that a girl had much less chance of getting a grammar school place than a boy, as the council provided 390 places for boys and 210 for girls in the six voluntary aided grammar schools. The council was therefore acting unlawfully under the 1975 Sex Discrimination Act.

In his judgment, Mr Justice McCollough dismissed the defence's arguments that the council did not intend to discriminate and that there was no evidence to show that girls were treated less favourably because they had to go to comprehensive schools instead of the grammar schools.

The judge ruled out the option of recommending that the EOC should complain to the Education Secretary under section 99 of the 1944 Education Act.

In granting the declaration, Mr Justice McCollough said the council should be urged to redress the imbalance as speedily as possible.

Birmingham City Council will decide within the next two weeks whether to lodge an appeal against the decision.

Kodak CAROUSEL S-AV 1010 projector

An education in economics and advanced technology.

In education, the old adage that a picture is worth a thousand words is perhaps more relevant than in any other area. Young minds always respond better to visual stimuli, and the better the image, the more likely they are to remember.

As far as technology goes, the 'Kodak' CAROUSEL S-AV Projector is the product of 25 years of continuous research and development, and is the industry standard by which all other projectors are judged.

The CAROUSEL S-AV 1010 Projector is ideally suited to classrooms thanks to a high light output from the 250 watt halogen lamp which gives excellent picture quality, even under poor black-out

conditions. For more sophisticated needs, there are more sophisticated models in the range.

Now for the lecture in economics. The range of 'Kodak' CAROUSEL Projectors may not be the cheapest on the market

but with its high reliability record a CAROUSEL Projector in this year's budget means you will not need to put money aside to replace it for many years to come.

Write for a brochure giving full details of the complete range of 'Kodak' CAROUSEL S-AV Projectors. It's one reference book that no educational institute should be without.

Write to Kodak Limited, Motion Picture and Audiovisual Division (TE3), Kodak House, PO Box 66, Hemel Hempstead, Herts. HP1 1JU. Or phone (0442) 62331.



PROFESSIONAL ASSOCIATION OF TEACHERS



Does your union have a Certificate of Independence as a Trade Union?

Does your union have a no strike rule?

Can you obtain legal advice on any subject 24 hours a day, seven days a week?

Can you obtain incentive bonus shopping at the majority of High Street stores?

Do you receive your association's journal mailed directly to your home?

Professional Association of Teachers
FREEPOST
Department EW
99 Friar Gate
Derby DE1 9BR

كتاب الناصر



Active support: Susan Hampshire with dyslexic children at the start of the BDA's fund-raising campaign

Life for Anne Mickelthwait has undergone a dramatic transformation. For the first time she can read the poetry she composes in her spare time.

There is nothing wrong with her sight. But she suffers from dyslexia and has had literacy problems since she was a child.

Anne, always had to dictate her poems to a neighbour and to ask others to read them. It was not until she was in her thirties that she realized she was dyslexic. For the past two years, now she can read and write, albeit not easily.

Anne, a Sheffield artist who is now 40, told her story on board the Dyslexia Institute bus which visited London earlier this week after a country-wide tour for the start of Dyslexia Week.

She recalled her time at school, most of which was spent at the back of the classroom colouring drawings or looking at pictures. "I sometimes felt so isolated and lonely. I just had no contact, it seemed."

She left school unable to read or write properly and with no maths or history. She could not even understand a map. "It was one long hard battle to survive in a world that takes reading and writing for granted."

Dyslexia, otherwise known as specific learning difficulties, manifests itself in various ways, from difficulties with reading, writing, spelling and arithmetic to problems with memory and physical direction.

The British Dyslexia Association esti-

Bus drives home needs of dyslexic children

mates that up to 10 per cent of school-age children suffer from it, 130,000 of them severely. Yet only 10,000 actually get special help.

Ms Aaa Taylor, MP for Derbyshire and chair of the Labour Party's backbench committee on education, told those on the bus that Anne's story was being repeated in too many schools today. People had to become more aware of dyslexics' difficulties, she said.

Too many, including some teachers, still refused to believe the affliction existed.

Ms Taylor said the progress that had been made was threatened by expenditure cuts and moves towards a more competitive education system. Yet demands on resources would increase if teachers became better at identifying dyslexic youngsters.

Mr John Friel, barrister and expert on the 1981 Education Act, said some I.e.s.s. were delaying the statementing

process because of the cost.

The 1981 Act discriminated against some parents, he added. It created an "area of privilege" by giving the parents of statemented children the right of appeal both to an independent committee and to the Secretary of State. But it deprived those whose children had been deemed ineligible for a statement of a right of appeal to the former.

Furthermore, if parents accepted an I.e.s.s. view that their child did not need a statement - and the majority were unable to obtain statements - they had no recourse if the provision made turned out to be inadequate. Nor was the authority obliged to review such a situation.

Mr Alan Giles, senior special needs adviser for Avon, added a brighter note by describing his authority's attempts to help dyslexic children. Speaking personally, he said that any shortfalls to Avon's provision would be due to economic factors rather than policy or philosophy. There was no shortage of goodwill or intent.

Dyslexia Week forms part of a special month of activities which has seen the launch of a £1.5 million fund-raising campaign by the British Dyslexia Association. The money raised will be used for training teachers, counselling parents, supporting sufferers and their families, and expanding the BDA's information service.

Sue Surkes

Cascades pour extra work on fatigued staff

Educationists are suffering from "innovation fatigue" and want a period of respite to take stock, Professor Tony Heathcote, chairman of the Joint Matriculation Board, told the board's annual conference last weekend.

"Even as we sit here, you may be assured that the Secretary of State is sitting in his office somewhere devising another reform on the back of an envelope which he will doubtless pass down to the DES who will pass it down to the examining boards and so into the schools. A cascade model. I think it's called."

During the conference plenary session, panelists were asked which innovations they would scrap to reduce stress on educationists.

Mr Raymond Elmer and Dr Ros Bradbury of the board and the JMB Examinations Council said they would postpone the introduction of A/S levels because of the work that still had to be done on GCSE.

Mr Colin Vickerman, the JMB's secretary, said he would put the Government's proposals for assessment and testing into cold storage. Ms Kathleen Tattersall, joint secretary of the Northern Examinations Association exams committee, chose the proposed national curriculum, while Professor Heathcote, with a twinkle in his eye, opted for the Education Secretary himself.

Professor Heathcote used his chairman's address to outline radical plans for the JMB and the four CSE boards to merge into a single body responsible

Sue Surkes reports from the annual conference of the Joint Matriculation Board in Manchester

for administering 16 to 19 exams in the north.

But he said agreement was proving difficult. "Mr Steel's difficulties in bringing the SDP and the Liberals into oneness I sometimes feel pale into insignificance by comparison with the task which is before us."

The new structure, which might be called the Northern Examinations Authority, will replace and extend upon the Northern Examinations Association which has seen the JMB and CSE boards joining forces for the GCSE.

Based on the principle of equal partnership, it will take responsibility for GCSE, A/S levels, A levels and, in partnership with the local education authorities in the North, records of achievement.

The original plan was to issue a statement of intent by the end of this year. Professor Heathcote later said. But a delay was expected.

The main sticking point was where power would lie. The JMB was afraid that the I.e.s.s. and teachers would have too much say while the CSE side was suspicious of the universities taking over, he said.

Pupils feel the strain too

Some fifth-year pupils are finding it difficult to meet deadlines for GCSE coursework, Mr Graham Locke, head of Audenshaw High School in Manchester, told the conference.

"If the schools fail to recognize the problem, then the pressures on some students will become intolerable."

Mr Locke, a member of the board and the JMB Examinations Council, said subject departments would have to attempt to spread the burden over time and keep parents informed of important deadlines and the tasks their children had to complete.

But what of the youngsters who had a poor attendance record, health problems or emotional and domestic crises? "Despite the best intentions, it is difficult to know how an appeals procedure can make adequate compensation for a pupil's personal crisis which happened in, say, the previous

October."

Mr Locke, who emphasized the commitment of individual teachers to the GCSE, said staff were finding out the need to prepare pupils and cope with coursework had implications far work lower down the school. Younger pupils were having to be trained to take more responsibility for their learning. Even so there were fears that some pupils who were difficult to motivate might still have insufficient work to offer for assessment.

Apart from the marking of coursework itself, monitoring and training had tremendous time implications. "I certainly see teachers of English spending 10 to 25 hours marking the week's work for fourth and fifth-year classes and having to mark with constant reference to the criteria of the syllabus and the standard as agreed at trial marking sessions."

DES sends out buildings alert

The Government has launched an urgent investigation into claims that timber-framed school buildings, put up during the baby boom of the 1950s, are in danger of collapsing.

The alert follows reports of problems at 11 schools in Sheffield where staff have found rotten wood in wall supports and beams. Although no children have been hurt, steel props have had to be used to shore up classrooms.

The Department of Education and Science is warning all local education authorities in England of the problems and asking them to check schools of a similar construction and report back.

A spokesman said there were 170 schools which could be affected throughout England. Birmingham had 22, Derbyshire 25 and there were several in Essex, Lancashire, Nottinghamshire and Warwickshire. Others were "dotted about all over the country," the spokesman added.

Derbyshire County Council officials said that none of its schools had the problems discovered in Sheffield.

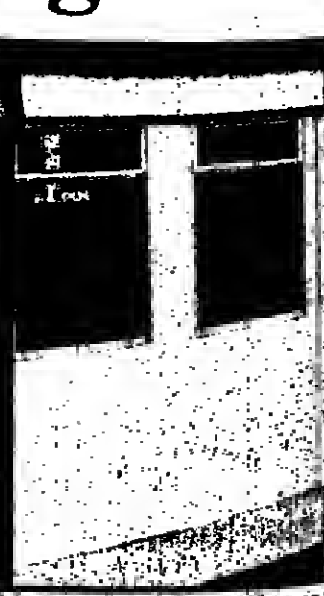
In Birmingham, a spokesman said that each of the city's 22 timber-frame schools were undergoing a full structural survey. "But we feel it is highly unlikely that any of our schools are in the same state as Sheffield's because our building experts inspect them regularly to ensure they meet health and safety standards."

A Sheffield City Council spokesman said: "All our schools are now quite safe. There is no suggestion that they are now going to fall down."

He said that steel props had made the buildings secure although it could cost up to £5 million to provide a permanent solution to the problems of the "Derwent System" buildings.

The buildings were originally said to have a life expectancy of only 10 years - but experts said this did not imply that all such stock must be demolished after that period.

"Life expectancy" generally refers only to the period during which a building is willing to warrant the building, the Housebuilders' Federation explained.



Probs have lasted longer than expected but some 1950s timber-framed buildings are now suspect

Lorraine Dempster reports on a school with foreboding about the introduction of a national curriculum

Why the 'chalk and talk' methods had to stop



Lines of communication: pupils take part in a personal and social skills lesson

Teachers in a mining village in South Yorkshire feel that the comprehensive dream could well come true at their school - if only the new Education Bill would leave their alternative curriculum alone.

Of the 153 pupils who left Royston comprehensive, near Barnsley, last summer, only 11 found work despite exam results that were above average for the Barnsley district and compared favourably with the national average.

Mr Barry Hilditch, the headteacher, believes that increasing both educational opportunities for all and motivation, in a district which has 19 per cent unemployment, requires him to take liberties with the curriculum.

Academic achievement has improved each year of his five-year headship. "This community has been kicked, and teaching is not successful until we give the children a modicum of self-esteem," Mr Hilditch said. "We serve an identifiable community in this village. The sort of children we have in Royston usually don't have much self-confidence and their parents are pessimistic about the future."

"The children's communication skills are generally not well-developed. We felt that if we could help in areas like this, we would be helping them for life. We want them to have the same self-confidence that teachers assume in pupils in the south of England."

Lessons are cross-subject. History, geography, and religious studies are tied together under the humanities label in non-examination years, for example.

Fourth and fifth-year pupils devote one day a week to personal and social skills lessons, taking eight rather than nine GCSEs as a result. "The school is moving away from traditional 'chalk and talk' teaching outwards to a system which tries to relate to pupils' individual needs."

"Our decision to reduce GCSEs from nine to eight was made after we were sure that this would not close any more avenues to pupils," he said. "We

are not in the business of totting up subject numbers for the sake of it. There is no evidence to support theories that the academically bright underachieve here. We have worked hard to find ways of encouraging the 40 per cent who find GCSEs too hard."

In this school where 25 per cent of children qualify for free lunches, changes in the school week are debated with a fanfare which would put in the shade the educationalists responding to the national curriculum consultation document. The decision to use one day a week in alternative studies followed a two-and-a-half-hour meeting between teachers, governors and parents. Previously, only half-days

were used in this way, but the results of the previous summer suggested the head's scheme for getting the best out of pupils was getting results.

Last summer, more than 55 per cent of pupils leaving the fifth form obtained one or more O levels, and 21 per cent passed in five or more subjects. Latest statistics for Barnsley as a whole (for 1985) were 23.5 and 15.6 respectively.

Radical reformation of the curriculum began five years ago when the newly-appointed headteacher recognized that he had taken control of a school with high truancy and a poor record in exam results.

He identified gaps and repetitions

arising from the strict subject demarcation. Girls studying home economics CSE, human biology CSE, and a linking child-care course at the local tech were instructed in sex education three times. On the other hand, only boys studying CSE biology gained any instruction in it at all.

Not all of Mr Hilditch's radical changes - for example, mixed-ability teaching - have been enthusiastically received. Out of the original staff of 46, only 11 remain among the present teaching staff.

Down the corridor from his office, a new intake of first-year pupils that morning were taking part in their first humanities lesson. They were asked by

Mr Brian O'Connor, the geography teacher, to list their fears in starting at a new school. The list, in almost unanimous order, was: bullying, having to make new friends, homework and getting on with teachers.

Meanwhile, a group of fourth-year pupils was visiting a sewing machine factory and a bakery for material to make a video about places of work. They treated the teacher as if he were a youth leader: their attitude was boisterous but curiously non-belligerent.

Fifth-years spend their extra-curricular day work-shadowing. The Royston scheme is unusual in that pupils have to set up their own assignments, with a list of local firms willing to help. "We want these young people to feel they are in charge of their own lives," said Mr David Klemm, the deputy head. "We usually get out the first phone call a few times before it happens."

One of the successes of the scheme was a project to improve the local chemist's computer labelling on drug bottles.

"The computing department worked out a new program. The project was doubly useful in that it taught people about the dangers of drugs," said Mr Klemm.

The head believes that his school succeeds as much as it does because it rejects rigid prescriptions for subject teaching. "We fight a special battle to inspire self-confidence and capture enthusiasm. We will have to bow to a subject-based curriculum, of course," he said sadly. "The irony of all this is that the Department of Employment and Manpower Services Commission clearly prefer cross-subject initiatives."

"I await the new curriculum with some curiosity. It is quite incoercible in a secondary school like ours that every pupil can learn a foreign language. Certainly not for 10 per cent of the time. We have a child in the fifth form who has only recognized the alphabet for two years."



Can you spot the talent in your school?

To enter the worlds of science, literature and the arts requires creativity, self-discipline and awareness. These are the same qualities your pupils will need to enter the 1988 TSB Rock School Competition.

A unique event, the competition continues to stimulate interest and enthusiasm amongst teachers and pupils alike.

It teaches all entrants the value of working and problem-solving as a group, as well

as helping them to realise their potential.

Open to all pupils aged between 13 and 19, the competition is now in its eighth year and there are prizes for the groups and their schools worth over \$6,000.

Put our theory into practice, fill in the coupon for details of the rules and entry form.

Whatever the outcome, you'll find that the TSB Rock School Competition is quite an education for all concerned.

Post now to: TSB Rock School Competition, Trotman & Co. Ltd., FREEPOST, Richmond, Surrey TW10 5BR.

Name _____
School Address _____



Tory poll win saves Tiffin grammars

by Tim Rice

A Conservative victory in a Kingston council by-election has put on end to Liberal plans to introduce a borough-wide comprehensive system.

Existing grammar schools - Tiffin Boys' and Girls' schools.

Now the proposals will be rescinded within a month. Mr Frank Hartfree, the Conservative leader, said: "We are very relieved indeed. The overwhelming majority of people want the 11 to 18 system retained."

Kingston, a traditional Conservative area, was won by the Liberals in 1986. Their success was partly due to an

unpopular decision to close the area's only mixed secondary school because of falling rolls. Now a high turn-out has given the Conservatives a majority of two - a 16 per cent swing in their favour.

The Alliance leader, Mr Steve Harris, attributed the result to his party's poor performance in national opinion polls. "We are heartbroken," he said. "By October 26 we would have finalized the proposal."

unpopular decision to close the area's only mixed secondary school because of falling rolls. Now a high turn-out has given the Conservatives a majority of two - a 16 per cent swing in their favour.

The Alliance leader, Mr Steve Harris, attributed the result to his party's poor performance in national opinion polls. "We are heartbroken," he said. "By October 26 we would have finalized the proposal."

SCHOOL SKI PARTIES DON'T MISS THE SNOW!



The School Ski specialists have added extra places for the following dates to the French alps this winter:

New Year - Half Term - Easter

BEST RESORTS - BEST SNOW - BEST PRICES!

Phone today: 0993 76944

PRIMARY



Pipes takes line of passive resistance

The massive upheaval which Government ministers are proposing to force on British schools will meet with "passive resistance" from primary headteachers unless some concessions are made, said Mr Michael Pipes, president of the National Association of Head Teachers, in a defiant speech to members.

Catching the angry mood of heads and sensing their outrage that Mrs Angela Rumbold had accused them of being "frightened", Mr Pipes said his 29,000 members were in a position to "negotiate".

"That is what I am suggesting we do... Perhaps the time has come to state our terms and to name our price."

No one should doubt the conviction of the Government, he said, which was backed by a "clear mandate", nor should they be surprised at the outcome of a political philosophy which aimed to privatize all public services.

It was a philosophy which, at root, wanted to see educational vouchers in the hands of every parent and a system of schools "that, as far as possible, are private and competing".

The NAHT was a non-political organization, but if members were out of tune with Government philosophy and held strong beliefs of their own about education and its ultimate purposes, they must "engage in strenuous debate - never discourteously - but saying very firmly indeed what you believe".

Mr Pipes knew that heads favored some sort of change and development. "But without the will and the heart of the deputies and heads of this country, change cannot be secured."

Later, Mr Pipes told *The TES* that the Government would be "foolhardy" not to recognize the key role of NAHT members in realising the consultative proposals.

"We are bold enough to say there are aspects which need talking about. If they don't respect our feelings, they have got to be prepared for fairly tough times."

Hitherto, heads had been the final arbiters of the curriculum and management of schools and they intended to "hold to that". Some I.E.A.s had "made

Edited by
Sarah Bayliss

The National Association of Head Teachers held its first national primary conference in Coventry last weekend. Almost 150 heads and deputies gathered to discuss the Commons Select Committee Report on primary education (thumbs up) and the Great Education Reform Bill (thumbs down). A speech from Angela Rumbold, (left) Minister of State for Education, galvanized members to rally to the call of Michael Pipes, (right) their president, for non-cooperation if Mr Baker insists on no-concessions.



Test result aggregation leads to heads' aggravation

Parents of 7 and 11-year-olds who sit the proposed national tests for mathematics, science, English and the foundation subjects will be able to compare their children's results with the averages for the class, the school, the local authority and the nation, according to Mrs Angela Rumbold, Minister of State for Education.

Giving the first details of how politicians intend their system to work, Mrs Rumbold said results would be "aggregated together for the individual schools, and for the I.E.A. as a whole, so that parents and the wider community can get some idea of what is happening, and can make comparisons."

"The results of all I.E.A.s will also be aggregated so that central government will be able to know how the nation is doing," she said.

Mrs Rumbold's heavily descriptive speech appeared to pre-empt the advice of experts on assessment and testing that the Government appointed to a special task group. She said the comparison of results or league tables would not "tell the whole story".

The Department of Education and Science was already considering how the information from tests could be "related to the performance of individual schools, given their different intakes".

To hoots of derision from her audience of 150 primary heads, the Minister went on: "I do not believe that parents will make naive judgements on the basis of league tables. Parents will want to know what a school's past performance is not on an infallible past performance but on its ability to improve itself. They will be looking at what a school can contribute to their children to help them make something of themselves."

Over the years, she said, results would build a clear picture of the performance of individual schools and I.E.A.s. "I suspect that many people will be surprised to see the kind of results some schools have achieved as distinctly unpromising. Just as we must stop having low expectations of pupils, we must also stop having low expectations of schools."

Early on, the audience response was heated when, from the heads' point of

view, Mrs Rumbold patronized both their professionalism and parents' level of understanding.

Attainment targets in the foundation subjects - as well as the core of maths, English and science - would lead in future, she said, to less criticism of topic work and that some classwork "consists of amorphous discussion and idle play".

Subject labels were being used to describe the curriculum because they were understood by people outside education. "Parents need to have things described to them in simple, clear language," she said to cries of "Shame!"

Mrs Rumbold conceded that standards had been rising in primary education, "but we cannot rest on our laurels. They need to rise further - much further." To ensure that this was happening, the Government must have "proof" in the form of regular national tests.

Recent evidence from HM Inspectorate had shown the majority of schools used tests at present, but only a

minority had an assessment programme which was used to diagnose need and to plan future work and staff training.

"The great majority of schools simply give tests as a matter of routine but little action follows. They tend to lie inertly as scores in pupils' records. This is not what we envisage in the arrangements for assessment we are proposing."

The purposes of primary school tests for children at 7 and 11 were to check progress, to diagnose problems as soon as possible and to make sure that action was taken. "I said diagnose and I meant it."

The system would depend heavily on class teachers and the national tests would be administered by them as part of a "class-based assessment". Class teachers would also be "responsible for following up the results."

Mrs Rumbold claimed the testing and assessment would not be of a pass/fail nature. Advice would be taken from the task group but it was envisaged that "targets would be fairly broad" and could be divided into different levels of attainment.

For example, she said, children might be asked to predict something on the basis of what had happened before in certain circumstances. High attaining pupils would be able to generalize about what was likely to happen; others would pick out some points but not make all connections; the less able would "not relate their predictions to what may happen at all."

During questions, by which time the audience had grown openly critical and angry, headteachers argued there was a direct contradiction between tests' results used for diagnostic purposes and results from which league tables could be constructed.

One head was supported with loud applause when he said it was "disgraceful" of the Minister to imply that teachers did not take action on diagnostic test results at present; if no action was taken the reason was usually a change of personnel.

Mrs Rumbold said she was "disgraceful" of the Minister to imply that teachers did not take action on diagnostic test results at present; if no action was taken the reason was usually a change of personnel.

Mrs Rumbold said she was "disgraceful" of the Minister to imply that teachers did not take action on diagnostic test results at present; if no action was taken the reason was usually a change of personnel.

Mrs Rumbold said she was "disgraceful" of the Minister to imply that teachers did not take action on diagnostic test results at present; if no action was taken the reason was usually a change of personnel.

Mrs Rumbold said she was "disgraceful" of the Minister to imply that teachers did not take action on diagnostic test results at present; if no action was taken the reason was usually a change of personnel.

Mrs Rumbold said she was "disgraceful" of the Minister to imply that teachers did not take action on diagnostic test results at present; if no action was taken the reason was usually a change of personnel.

Mrs Rumbold said she was "disgraceful" of the Minister to imply that teachers did not take action on diagnostic test results at present; if no action was taken the reason was usually a change of personnel.

PRIMARY

Julia Hagedorn reports on the state of British nursery centres from the annual conference of their national association held last weekend

Exciting success but not without headaches

Nursery centres are vibrant and exciting places to be in, according to the preliminary findings of research carried out over the past year. But they do suffer from staffing and administration problems because of their joint funding by the Departments of Education and Science and Health and Social Security.

This leads to disparity in staff pay, holidays and working hours. Ms Liz Murphy, who carried out the research into 20 centres, said. It also causes problems about which children get priority for a place.

Ms Murphy praised the centres for the way their flexible hours are increasingly providing for the needs of the whole family. However, she added that it is still not unusual to find centres where the nursery school and day nursery operate as separate entities within the same building.

Ms Murphy is the new chair of the National Association for Nursery Centres which held its annual conference in Birmingham last weekend. There are now around 40 centres in Britain and the NANC was formed to campaign on behalf of both nursery teachers and nursery nurses working in the centres.

The association has grown rapidly since the early centre heads met informally in 1975 to discuss the problems of working in combined centres. At Birmingham, more than 100 participants came from workshops on special needs, the emotional needs of the under-3s, bilingualism and multi-ethnic resources, or how a Well Woman's clinic works.

Ms Murphy feels that if nursery schools could operate an extended hours system, many problems would be ironed out. One of the first centres to be set up, the Donnelly Gardner Centre in Westminster, exemplifies some of the difficulties. It has three levels of staff: teachers, nursery nurses and nursery officers. The latter, who work alongside nursery school teachers, are at the bottom of the pay scale. Although they have the same qualifications and work the same hours at the nursery nurses in the day centre, they earn up to £3,000 a year less.

The new rates of pay have further complicated matters. A teacher on the basic scale can now earn more than the head of a centre who is on a different scale. Ms Kathy Slim, head of the nursery school, dreads to think what will happen if Westminster carries out its plan to opt out of the ILBA.

Ms Ethel Roberts, head of the centre, said that it was becoming more and more difficult to operate under such conditions. Too much depended on staff goodwill at a time when they felt insecure and resented by being unwilling to take responsibility or make decisions. "You can no longer

depend on goodwill," she said. "The stresses of the cuts and the pressures of accountability are putting too great a strain on working together."

Mrs Cynthia James, nursery/infant adviser for the London borough of Haringey, reminded the conference that one of the major tasks of early education is to help the child shape his or her personality. Children learn what they are like through the relationships they make and by the way adults speak to them. The infection in a voice, the constant praising of one child, ignoring of another or scolding of a third is an important part of the self-portrait children build up.

A child's name, she pointed out, was an essential part of his or her identity. It was horrendous to find children from minority ethnic groups being given Westernized names because the school could not pronounce the original one.

She also wondered why teachers make four-year-olds line up. Or why they are made to wait until playtime to go to the lavatory "because that is when we go". Or why all children are expected to eat their lunch at the same speed so that the hall can be cleared for the second sitting. This, she said, can leave four-year-olds still eating their first course. "We say all children are individuals," she said. "But we treat them as a group."

She also reminded the audience that while a child might seem to cope during the day with starting school, or

into the discussion. Black children must be helped to realize that a negative response to them did not stem from their own shortcomings but from a racist society.

Elinor Goldschmidt, who helps train day centre staff in three London boroughs, showed how the right resources can keep babies as young as six months fully occupied.

She uses 173 objects (not toys) carefully chosen to appeal to the five senses and kept in what she calls a "treasure basket". The conference was shown four six to eight-month-old babies who played for more than an hour with the objects without any adult direction.

Commercial toys, she said, do not lead a child anywhere. Having infants in groups was a recent phenomenon but her work showed that, given the right material, even very small children do play together.

All too often centres were so organized that the routine worked like an assembly line. "I would like to see a bit less adrenalin flowing. Staff are on an eight-hour day and they try and carry on without stopping. No wonder there is such a high drop-out rate," she said.

She also reminded the audience that while a child might seem to cope during the day with starting school, or

into the discussion. Black children must be helped to realize that a negative response to them did not stem from their own shortcomings but from a racist society.

Elinor Goldschmidt, who helps train day centre staff in three London boroughs, showed how the right resources can keep babies as young as six months fully occupied.

She uses 173 objects (not toys) carefully chosen to appeal to the five senses and kept in what she calls a "treasure basket". The conference was shown four six to eight-month-old babies who played for more than an hour with the objects without any adult direction.

Commercial toys, she said, do not lead a child anywhere. Having infants in groups was a recent phenomenon but her work showed that, given the right material, even very small children do play together.

All too often centres were so organized that the routine worked like an assembly line. "I would like to see a bit less adrenalin flowing. Staff are on an eight-hour day and they try and carry on without stopping. No wonder there is such a high drop-out rate," she said.

She also reminded the audience that while a child might seem to cope during the day with starting school, or

into the discussion. Black children must be helped to realize that a negative response to them did not stem from their own shortcomings but from a racist society.

Elinor Goldschmidt, who helps train day centre staff in three London boroughs, showed how the right resources can keep babies as young as six months fully occupied.

She uses 173 objects (not toys) carefully chosen to appeal to the five senses and kept in what she calls a "treasure basket". The conference was shown four six to eight-month-old babies who played for more than an hour with the objects without any adult direction.

Commercial toys, she said, do not lead a child anywhere. Having infants in groups was a recent phenomenon but her work showed that, given the right material, even very small children do play together.



Gritty problems: Liz Murphy has uncovered nursery centre difficulties as well as achievements

ALL THE BEST IDEAS START WITH PLATIGNUM.



The new student cartridge pen, £1.50.

Just one of a range of fountain pens from Platignum

Available from selected branches of Co-operative Stores, Martin, John Menzies, N.E.S. Forthright, W. H. Smith, Underwood, E. W. Widdows, plus leading independent stationers.

WELCOME TO QUEST

Quest offer fully supervised, quality, Adventure and Ski holidays for schools and groups. In the UK and Europe.

BETTER VALUE - we aim to provide a comprehensive range of challenging and Educational Adventure holidays at most competitive prices. Our prices start at £18.00.

SAFETY FIRST - on all Quest holidays, safety is of paramount importance. We consider this our single most important responsibility.

EXCELLENT LOCATIONS - our centres are situated in superb locations in France, Spain, North Devon and the Lake District.

100% SECURITY - As part of Granada Leisure Plc we are backed by one of Britain's top public companies. We are also members of ABTA.

PERSONAL SERVICE - Our personal service and attention to detail is second to none. Travel with Quest in '88 and we're sure you'll appreciate the difference.

SPECIAL SKI OFFER - We have a number of dates available for this ski season - please ring for details.

* £12.00 per person weekend.

Quest Adventure
Bokore Road, Haywards Heath
West Sussex RH16 4BX. Tel. (0444) 441300



Sports Council acts as host

The Sports Council has formally agreed to act as the host body for children's play, six months after the collapse of Playboard, the quango set up in 1983 as an inner city initiative.

Playboard's staff voted in June to go into voluntary liquidation rather than be taken over by the Sports Council in a move inspired by the Department of the Environment.

A Sports Council working party has held discussions with more than 30 organizations linked with children's play and has consulted widely on a formula for a new central support unit and management committee.

Local authorities, associations and voluntary organizations will be among those represented over a 90-day interim period of four years.

This week, Ms Maggie Smith, a former national officer of Playboard and an ex-member of Playboard's advisory committee, said she welcomed Sports Council efforts to keep in touch with the voluntary sector and believed the new body was quite good for the future of children's play.

One head was supported with loud applause when he said it was "disgraceful" of the Minister to imply that teachers did not take action on diagnostic test results at present; if no action was taken the reason was usually a change of personnel.

Primary Index

Parent teachers	21
Disintegrated day	21
Teaching standards	22
Shirley Hughes on aesthetics	27
Playground art	32

IN BRIEF

Lecturer goes for NUT job

North Yorkshire members of the National Union of Teachers have broken with tradition by nominating a university lecturer for election as the union's national vice-president. Mr Frank Harris, a former secondary teacher and head of the Audio Visual Centre at York University, is one of 12 contenders for the sabbatical post.

CPAG chief

The Child Poverty Action Group has appointed Ms Frances Bennett as its new director to replace Ruth Lister who has become professor of applied social studies at Bradford University. Ms Bennett, CPAG's former deputy director, paid tribute to Ruth Lister's leadership, saying that the challenge was now to face up to "an increasingly divided Britain with poverty and prosperity growing side by side".

Old-timers

Help the Aged has launched a new teaching calendar aided by actress Gretchen Franklin, better known as Ethel in BBC Television's *East Enders*. The calendar can be used year after year and features projects involving young and old people such as gardening, painting, and local history studies.

The calendar, plus teachers' notes and a resource guide, is available, price £4.50, from Help the Aged, Education and Research Department, St James' Walk, London EC1R 9BS.

Food supplement

Two supermarket chains, Presto and Safeway, are teaching polytechnic and university freshers a lesson in survival. The stores, both part of the Asda Group, are offering students a "survival kit" on diet which gives tips on low-cost cooking, a map showing the local store, opening hours and money-off vouchers. The recipes include cheese tacks and eggs, pasta with nutty bean sauce, and seafood mulligatawny. The vouchers are not so healthy though — they offer discounts on white bread and chocolate biscuits.

Special courses

Further education special needs tutors and co-ordinators should be offered nationally-validated award-bearing courses, a working group set up by the Department of Education and Science recommends. It proposes an in-service model with three levels of training that would lead to a certificate, a diploma and a master's degree. "A Special Needs Teacher Training Working Group" is available, price £2.50, from HMSO.

Built-in faults

Children's education is being hindered by the poor state of many schools — some with substandard rooms — says a report. It calls for a massive £38.7 million to be spent annually on the country's schools and colleges over the next five years. The report warns that failure to increase spending on school buildings could lead to the authority being sued for not meeting new Government regulations.

Japanese visit

Twenty-four Japanese teachers took part in a whistle-stop tour of Lancaster schools recently. The fact-finding tour, initiated by the British Council, was intended to show the English approach to the curriculum and teaching.

Name change

The National Council of Teachers' Centre Leaders has decided to change its name to "The National Council for Teacher-Centred Professional Development" from next January. Mr John Brand, secretary, said the change was meant to widen membership opportunities.

Dancing doctor

Mr Peter Brinson, head of Laban Research, the London centre for sponsored research into dance-related projects, is to receive an honorary degree of Doctor of Philosophy from the Council for National Academic Awards. It is the council's first such award to dance.

Survey alerts colleges to major new training opportunities

Transport terminals promise jobs boom

Colleges in three counties are being given a tip-off of up to £2 million-worth of potential work in a remarkable exercise funded by the Department of Education and Science.

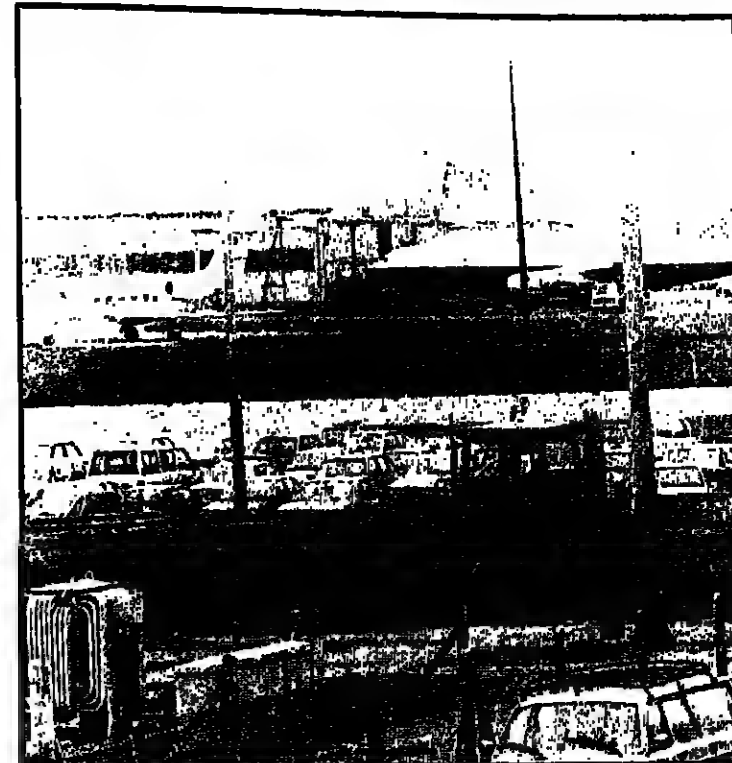
The DES's PICKUP programme, is conducting an extensive survey of the training requirements which will result from the expansion of Stansted Airport in Essex and the construction of the Darford ferry terminal. Its interim report this week says that the developments will create "a vast potential in training requirements which can be met by the skills and experience of the colleges in the areas".

Thought to be the first attempt to forecast the full manpower and training implications of a major onshore economic development of this kind, a wide-ranging study of education and training needs preceded the opening up of the North Sea oil fields — the project originated entirely within educational circles. The Department of Trade and Industry, and the Department of the Environment, the Government agencies primarily responsible for Stansted and Darford, have not been involved, although the Manpower Services Commission has co-operated enthusiastically.

Inspired partly by the example of Gatwick Airport, where a failure to carry out any manpower pre-planning resulted in acute skills shortages after expansion, the Stansted-Darford study is intended to establish a pattern for assessing the training needs arising from such developments and ensure that further and higher education responds effectively.

Altogether, it is estimated that the two developments will bring up to 20,000 jobs to an area stretching from the north of Cambridgeshire to the northern edge of London. This estimate includes the knock-on effects of the development in bringing service enterprises and other industries to the area. Stansted airport itself is expected to employ around 10,000 people in 10 years' time — five times as many as today.

At present, only one in 10 airport workers is employed by the British Airport Authority. There are about 50 companies on the site, though not all of them are involved with the work of the airport, and the survey did not take account of the needs of these others. The report says that during the development period about half the new staff will be imported from other parts of the country, and the rest from the counties neighbouring the airport — Hertfordshire, Cambridgeshire and Essex. Virtually every one of the companies involved will need to re-



Stansted: 'a vast potential in training needs'

cruit and train, and although in the early stages they will mainly use experienced staff brought into the area, the report points out that it will be important for them to start training the people they recruit locally well ahead of the time their skills are needed.

With anti-social hours, poor transport, and high-housing costs to hinder recruitment, there is danger of increasing competition between the employers for locally scarce skills. The study has established that, while many of the firms are training existing employees in management skills, health and safety, aviation-related engineering, customer service, telephone techniques, airport security and marketing, the colleges have not yet secured any significant share of the work, even though not all of it involves specialist expertise or equipment. In some cases employees were travelling more than 80 miles to attend courses which could have been provided by local colleges.

Immediate and long-term training skills were identified for updating the skills of both the existing and new employees, with management and supervisory training, computer monitoring, customer service, aviation studies, and word processing most often mentioned by the employers. Other training that the companies thought colleges could offer included flight planning, catering, secretarial skills, freight forwarding, and travel or airline reservations.

The report identified 14 colleges and other local authority training organizations within 45 minutes travelling time of Stansted which could between them meet all the training needs of the companies. Most could do it with existing full-time or short courses.

Despite this, the reports says that it was clear that a number of the employers believed that the further and higher education system was not flexible enough or that its courses and equipment were out-dated. The report

course in Transportation Engineering some five years ago and it is one of the 19 degree courses now offered by Napier College — the polytechnic of Edinburgh. Napier is the largest of the Scottish Central Institutions, a college with 4,500 full-time students and is located on the attractive south-west side of the city. All the courses have a vocational slant and quantify surveying, industrial design, catering, interior design and business studies are offered in addition to engineering and science.

Other central institutions which are equivalent to polytechnics in England and Wales, are the colleges of technology at Dundee, Paisley, and Glasgow, Queen Margaret College in Edinburgh, The Queen's College, Glasgow, and Robert Gordon's Institute of Technology, Aberdeen.

With the existence of the Polytechnics Central Admissions System and the restriction for all applicants to a choice of only four courses, the Scottish "polytechnics" ought to be given very serious consideration since these institutions come outside the PCAS system.

Brian Heap

Core studies 'must allow for TVEI'

Strenuous efforts to ensure that the proposed national curriculum does not play havoc with the Technical and Vocational Education Initiative are being made by the Manpower Services Commission.

Its retiring chairman, Sir Bryan Nicholson, has warned the Education Secretary that a rigid subject timetable could make it impossible for schools to run the kind of practical courses that TVEI has pioneered.

A high proportion of those developed by schools in the pilot programme during the past four years are modular and cross-curricular, or involve intensive spells of concentrating on a single project without time for other subject studies. The schools — and some of the examining boards who have developed special multi-subject GCSE syllabuses for them — say that the courses could not operate if schools are forced to devote a rigid percentage of the weekly timetable to specific subjects.

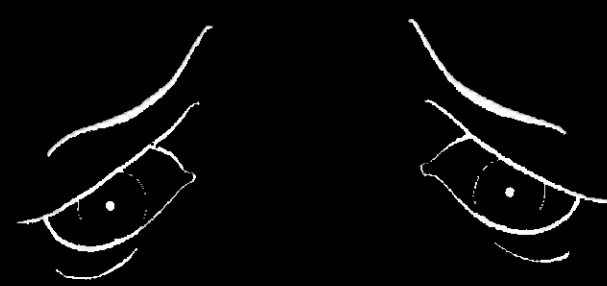
The fears have surfaced in the TVEI national steering group, the professional education body which supervises the programme for the MSC. As a result, Sir Bryan has had a series of meetings with the Education and Employment Secretaries, who agree with

him that the TVEI — now being extended into a universal scheme which will operate in every school within 10 years — must not be squeezed by the new curriculum.

The MSC's experts on TVEI will now be invited to monitor the plans being drawn up by the Department of Education and Science's subject working groups, and to contribute their own ideas. Mr Lloyd Jones, secretary of the Welsh Joint Education Committee, which has led the development of GCSE exams for the TVEI, said this week that the committee was certainly worried about the impact of the national curriculum, and had expressed its reservations in a formal response to the DES proposals.

It will not be impossible to accommodate the TVEI courses, but it will mean the Government modifying its ideas about imposing a strict division of time between specific subjects," he explained. Otherwise it would mean sacrificing much of the practical and experiential learning which has been such an important part of curricular development within the TVEI.

Edited by Mark Jackson



In the dark about school governors and governing? The TES will lighten your darkness.

New legislation has given parents and governors more powers and responsibilities.

A major new eight week pull-out series covering every aspect of school governorship starts October 23rd.

Make sure of your copy. Order it today from your newsagent.

The TES. Every Friday 60p.

THE TIMES
Educational Supplement

Record crop

New statistics show that English and Welsh polytechnics have boosted their graduate numbers to more than 30,000 for the first time. The 1986 total of 30,331 compares with 29,469 in 1985 and 26,691 in 1984. The 1986 figure includes 532 more women. Women now account for 44 per cent of polytechnic graduates. The findings are published in *First Destinations of Polytechnic Students Qualifying in 1986* by the Association of Graduate Careers Advisory Services.

Shortlisting for headships unsatisfactory, study says

by Bert Lodge

Eight out of 10 applicants for head and deputy head posts are eliminated before any judgement can be made about their performance in the job, according to a research study.

Short lists are drawn up on the strength of an application form or a curriculum vitae together with an accompanying letter. Yet it is doubtful if these sources of information can be used to predict how well the candidate will do the job, says Dr Tom Elkins, head of Eton (City of Norwich) School in the October issue of *Research papers in education*.

Dr Elkins says alternative methods of selection must be found. One simple advance would be the taking-up of references on all candidates and examining them before any "longlisting" decisions were made. In the local educational authority where Dr Elkins conducted 78 interviews over a five-year period, this practice was not followed, though he concedes some I.E.A.s may have introduced it. Dr Elkins found keen competition for headships and deputy headships. Of 56 appointments made in secondary

schools between 1978-83, three attracted more than 200 applicants, 10 drew between 150-200, 17 between 101-150 and 16 between 50-100. The 10 appointments for which fewer than 50 applied all indicated a woman was preferable — with such qualifying details as "responsibility for girls' welfare".

The average number of candidates for a deputy's job was 150 and for a headship, 80-100. The "long list" — usually numbered 24 though this was extended to 30 for four deputy headships which each attracted more than 200 applicants.

Out of 37 heads asked to compare the information on application forms for a deputy headship only 27 rated academic qualifications as "very important", though 28 thought them "worth considering". The qualification "variety of school experience" closely followed by "status and type of present post" (40).

Dr Elkins found some disagreement between education officers and heads

on the importance of the letter accompanying the application form. Officers find it less important; applications are separated by them on the strength of the data on the application form. The letter only counts for reducing the length of the long list.

The study refers to the qualities of successful leadership identified by HMI in *Ten good schools* (1977) together with earlier research studies. Dr Elkins comments: "All draw upon two fundamentals of successful leader behaviour, instrumental and social-emotional leadership. If selection is to be made with this object in mind then supplementary evidence must be taken at this first stage."

"Longlisting for headships and deputy headships in secondary schools; the elimination of the majority." by Tom Elkins, *Research paper in education*, vol 2, no 3, NFER-Nelson.

Open entry warning

A Chester high school, which was given aided status three years ago despite local opposition is now so popular that it desperately needs funds for expansion.

When the former Die high school was converted to the Bishop's (Bluecoat) Church of England high school, Diocesan education chiefs pledged to continue to admit all those from the original catchment area who wanted places and take Anglican children from a 12 mile radius.

A £30,000 expansion plan was last year turned down by the Department of Education and Science.

Last week a delegation from the diocese met Mr Robert Dunn, the education junior minister.

They have full backing from the local education authority. Mr Peter Nurse, the education chairman, said the situation gives advance warning of the effect of unrestricted parental choice.

A decision is expected by late December.

Searching for the tracks of the equality roadshow

by Diane Spencer

What effect does a day's equal opportunities training have on teenage girls? After the eighth Women's Training Roadshow was held in Cardiff in June, Ms Teresa Rees, a research fellow in the social studies department at the University College of Cardiff, decided to find out.

She was on the steering committee to organize the event which attracted around 2,000 girls. The roadshows are sponsored by the Women's National Commission which advises the Government on equal opportunities. Three more are planned for next year. Ms Rees, with Professor Gillian Powell, a colleague in the biochemistry department of the Welsh Office, provide a £16,000 grant to evaluate the impact of the roadshow.

A research assistant will look at practical lessons to be learnt in organising the programme, what impressed the girls and staff who attended, and

then she will produce a policy recommendation on curriculum development, teaching, and in-service training based on the findings.

Ms Jane Pilcher, the research assistant, will be visiting six schools representing a cross-section of those who attended the exhibition in the next two weeks or so, and the report should be published in the new year.



Real life: a sixth-form girl job-shadowed a woman scientist

Attention, Directors of Music 'I HAVE A DREAM'

BY JOHN BELL



Costume for World Peace, for harmony, choir and organ (or orchestra) for Coventry Hall school of Church (duration 18 minutes).
TOKAL NEW YEAR
20th Anniversary of the assassination of Martin Luther King (1968-1988) (duration 14 minutes).
FOUR PERFORMANCES
OF THE WISE
16th November, Bishop Ramsey School, Preston (organ).
15th November, St John's R.C. Church, Keston, Harrow (organ).
25th November, Simon Balle School, Bedford (orchestra).
5th December, Horwood Baptist, Deeping St. James, Peterborough (organ).
For inspection scores and cassette collection, John Bell, 43 Moulton Road, Walsingham, Norfolk NR21 1AA. Tel: 01693 801111.

THE YOUNGSONG MUSICALS

SECONDARY AND MIDDLE
"In Great Grandmother's Day"
Drama of 1914 British children who went on strike for their teachers. Cuts across modern new musical view 2 hrs. 20 min. £11.95

"The Peasantry Children"
Poor meet rich in the large industrial setting. Performed all over the U.K. 90 mins. £13.95

"The Emancipator"
City life sent to the country in war-torn 1918. A tale of a school show 70 mins. £11.95

PRIMARY AND MIDDLE
"John The Quaker"
High School Comedy with a difference. 5 Adams & Sullivan in songs. 25 mins. £11.95

"Dinner"
Unfinished musical, and by local school workers. Musical. 45 mins. £11.95

"The Muppet Show"
Great legend meets a school show. Musical. 45 mins. £11.95

"The Lollipop Lady"
For children and about children — the Primary School Musical. 45 mins. £11.95

Score/Song/Chorus for post box form.

YOUNGSONG MUSIC

Tel: (01) 546 0288

Box 417, Kingston, Surrey, KT1 1AA

The pay award no one wants

TEACHER UNIONS

The interim advisory committee set up by Mr Baker to replace Burnham is about to start work. Report by Jeremy Sutcliffe.

The Interim Advisory Committee, set up by Mr Kenneth Baker in place of the Burnham teachers' pay committee, is to begin taking submissions soon on next year's claim.

Exactly how the committee will operate is not yet clear. All that is known is that it will settle the 1988 pay award and tackle the problem of London weighting - when the current agreement has expired. But there is plenty of speculation, and considerable discomfort among the TUC - affiliated unions, already restive over their loss of pay bargaining rights.

The interim committee will be chaired by Lord Chilver, veteran of several Government advisory bodies. The civil servant who will act as secretary is Mr Michael Stark, a former diplomat who was transferred to the Department of Education and Science from Downing Street.

The likely pattern of events goes something like this. The Secretary of State will brief the interim body on its remit by the end of this month, when letters will be sent out inviting submissions from the unions, local education authorities and governors of voluntary-aided schools.

Only written submissions will be accepted initially and they will have to arrive, in time for the committee to consider them during late November and early December. Oral submissions may be heard later.

The committee is also expected to visit schools to talk to teachers and look at classroom conditions. It will prepare a report, which will be published, probably in February or March of next year. The Education Secretary

will then decide whether or not to adopt the committee's recommendations.

The letter inviting submissions is likely to ask the unions for up-to-date membership figures, to enable the committee to weigh their views. With the massive fluctuations in union membership which have resulted from the prolonged dispute, that will mean an increased influence for the non-TUC unions, which have been enjoying unprecedented growth.

It is not clear whether or not the biggest headteachers' union, the NAHT, will succeed in its attempt to win a separate voice in pay talks for heads and deputies. It is now pressing for their position to be considered by a separate subcommittee, which would make recommendations to the main committee.

The NAHT will doubtless be hoping to carry such an arrangement forward, as part of the permanent negotiating arrangements which will eventually replace the interim committee. However, that date could still be some time away.

Although Mr Baker has hinted that the interim body may be replaced once the April 1989 pay deal is settled, the signs are that this may not happen.

Under the Teachers' Pay and Conditions Act, rushed through Parliament at the end of last winter, the Education Secretary is empowered to impose settlements until April 1990.

The alternatives for a permanent negotiating structure are to be set out in a Green Paper, due to be published in the next few weeks. The possibilities are a resumption of wage bargaining, through a joint teachers' council (favoured by the three biggest unions), or a pay review body, similar to those for doctors and nurses (the Professional Association of Teachers' favoured option). But neither finds much favour with Mrs Thatcher. The review body option, unpopular with the Treasury, was ruled out in Scotland after the Prime Minister intervened.

It may well be that both Mrs Thatcher and Mr Baker will prefer to keep

their current stronghold on pay talks. In the meantime, the Green Paper will be published. There will be much deliberation and delay before a White Paper finally emerges late next year or in 1989.

One more radical solution being advocated - and which fits in with some comments made recently by Mr Kenneth Clarke, Lord Young's number two at the Department of Trade and Industry - is to scrap pay bargaining at national level and replace it with local pay talks. L.e.s.s. would then deal directly with their teachers, but the Government would retain a tight grip on the purse strings.

This option, like the idea of prolonging the life of the interim committee, is likely to anger teachers' leaders, who prefer national rates. It could be that the Government, intent on forcing through the most radical changes in education since the war, will wish to placate the teachers by restoring their bargaining rights rather than open up a second front on what, after all, is nearest to their hearts - the issue of pay.

INTERIM ADVISORY COMMITTEE

Lord Chilver: (chairman) vice-chancellor of Gonville Institute of Technology since 1978; member, Advisory Board for the Research Councils, 1982-85; National Advisory Board for local authority higher education 1983-85; deputy president, Standing Conference on Schools Science and Technology since 1980.

Dr Peter Andrews: GCSE co-ordinator for Derbyshire, head of Henry Fanshawe comprehensive school, Dronfield, Derbyshire, 1984-85; president, Secondary Heads Association, 1982/83.

Mr Geoffrey Armstrong: director, Metal Box PLC; chairman, CBI Employment Policy Committee; member, Engineering Industries Training Board.

Mr Ray Carter: director, Marathon Oil (UK) Ltd; Labour MP for Birmingham Northfield, 1970-79; Under Secretary of State for Northern Ireland, 1978-79.

Mrs Judith Chaplin: Head of Policy Unit, Institute of Directors; education chairman, Norfolk County Council and Berkshire Committee member, 1979-82; member, Secondary Examinations Council 1983-85.

Mr Ken Graham: Recently retired deputy general secretary of the TUC; Manpower Services Commission member, 1974-87; board member, Open College.

Dr Anne Hogg: Consultant to Industrial Society and other bodies; member, Doctors and Dentists Review Body since 1983.

Mrs Rosemary White: head of Trowbridge infant school, Gerdill, 1980-87.



Lord Chilver



Judith Chaplin

Tragic little girls with real dollies

SEX EDUCATION

Sarah Bayliss looks at a study of the problems of teenage mothers

Many teenage mothers have been social and academic failures at school, and have been persistent truants. From their point of view, having a baby may be "the only thing I can do right", according to an experienced school doctor.

New evidence from Camberwell, a deprived district of South London, shows that truancy among future schoolgirls is widespread. Sixty-two per cent of a sample there have truanted regularly for significant periods, and one in eight has been out of school for more than a year - some for as long as five years.

According to Dr Diana Birch, a former school doctor and from 1980 medical officer in charge of school health in Camberwell, the general level of achievement and self-esteem among schoolgirls is low, with 39 per cent considered by teachers to be below average ability.

Over a six-year period, Dr Birch conducted unpaid research among the girls in her care and found that 4 per cent were completely illiterate and 12 per cent were attending special schools, largely because of behaviour problems. One third had already been in child guidance, and half had been visited by education welfare officers.

A quarter of this latter group had received court warnings for non-attendance. These legal steps were highlighted, in Dr Birch's view, and she does an example.

"Sheelagh" had seldom attended secondary school and felt she would never be able to catch up with the work she had missed. Each time she went back, her experience in class "served to underline her sense of worthlessness". But her parents were taken to court and told that she must attend school. Sheelagh, according to Dr Birch, then found her own solution.

"She became pregnant in a deliberate attempt to avoid school, and presented a pregnancy certificate in court."

The children born of these teenage parents are just as poorly, says Dr Birch. "They perform less well in educational tests, have lower aims in school and fewer years schooling than other people."

In her book entitled "Are you my sister, Mummy?" Dr Birch draws heavily on her deep personal experience and research findings world-wide to trace the cycle of deprivation in later babies, are caught.

Evidence from her own clinics and consulting sessions over a six-year period shows how history repeats itself, how some girls are simply following the example of their mothers and sisters in getting pregnant at a young and vulnerable age.

Among the grave case studies she cites is Marion, a baby whose mother is 13, whose grandmother is 26 and who is cared for by a great-grandmother of the same age.

The United States introduced projects similar to Law in Education about 15 years ago, but Birch is probably ahead of Europe in trying to introduce law into subjects such as personal and social studies, religious and moral education, and home economics.

However, in Greek schools children are taught two hours of law a week and West German children are given a copy of their country's constitution. France started to introduce law into its school curriculum about two years ago.

The team members are confident teachers will have time to teach law despite the Government's proposals for a national curriculum which will take up between 80 and 90 per cent of the timetable.

Will he be able to break the cycle of premature parenthood - invariably linked to poverty, desperate housing conditions and sometimes cruel neglect - or "will he become a father in his early teens?" asks Dr Birch.

Naturally, the estimated number of schoolgirl pregnancies in 1983 was 9,100 for the under-16s, and 600 for the under-14s. Fluctuations have occurred from year to year but no substantial changes are recorded since 1972.

In Camberwell, Dr Birch found that the number of deliveries to young girls fell markedly in 1984 but increased again "dramatically" in the second half of 1985. She links this with a recorded fall in attendances by under-16s at contraceptive clinics; in one case where a dozen new patients could have been expected in only one annual quarter, only two or three turned up for advice.

This drop - confirmed by other agencies in the district - coincided with the Court of Appeal ruling in the Gillick case, which barred under-16s from receiving contraceptive advice. "It is easy to say," says Dr Birch, "whether the numbers will increase again after the reversal of that ruling in

the House of Lords in October 1985."

Evidence is given that girls are continuing to mature earlier: in the 1980s, their menarche (first period) is one year in advance of girls growing up in the 1940s. The average age for the menarche is now 12.5 years, but full fertility is not normally reached until two years later. In America, there is strong evidence that black girls are fertile earlier, partly explaining higher pregnancy rates. At the age of 11, one in five black girls is menstruating compared with one in 20 white girls.

In Camberwell, 65 per cent of pregnant schoolgirls have no father living with the family, and have five siblings, on average. Of the girls who do live with their father, one third have a poor relationship with him, and one sixth of those fathers has a mental illness, often alcoholism. Thirty-five per cent of their mothers have had the same experience of teenage pregnancy.

Thirty-five per cent of the girls are white, including 17 per cent Irish; 56 per cent are of West Indian origin, including 39 per cent Jamaican. It is increasingly common for white girls to set up single parent households and for children to grow up in fatherless families where they are "at risk" of becoming teenage parents.

Writing about the psychological development of young girls, Dr Birch says many girls have behaved as if they have no control over their own bodies. A tiny minority had used contraception; most - while believing they would

not get pregnant - had done nothing to prevent it.

"Such girls are accustomed to having little control over their circumstances. They live in poor housing, have little money, do badly at school and are unable to change their environment."

Six main factors are identified on "the stairway" to having a baby - immaturity, social problems, feeling unloved, failure, loneliness and ignorance.

In America the average age for girls to start having sex is 15, according to a national sample. But girls in care begin earlier - at just over 12, and few are virgins at 15. Among the deprived schoolgirls of Camberwell, the first experience of sex is at 13.5 years, on average. One in 20 starts at 11.

Dr Birch did not uncover what she considered to be promiscuous behaviour: 77 per cent of couples had known each other as friends for more than six months, and 67 per cent had been "going out" for more than a year. For more than half the girls this was their first boyfriend, and for two-thirds their first sexual relationship. "The younger couples - the girls being under 14 - are, perhaps surprisingly, more likely to be together two years after the birth of their babies."

Young girls do not realize immediately they are pregnant and one fifth do not face up to the situation until a third person tells them they are having a baby. Most tell their boyfriend first; very few tell a teacher. More than half the South London girls did not book for antenatal care until they were 20 weeks pregnant or more, which increased risks to them and their babies. The sad fact is that the mortality rate for schoolgirl mothers is high, and their babies are three times more likely to die than the offspring of middle and upper-class older women.

Nationally, one in three girls pregnant at 15 keeps the baby. In Camberwell, the abortion rate is much lower, with four out of five delivering and keeping their babies. In London, 3 per cent of girls in the survey have conceived as a result of rape and 12 per cent have a history of being sexually abused.

Some tragic cases are recounted, including Sharon who was raped by her father at 12 and was a mother herself by 16, looking after brothers and sisters who were all receiving psychological treatment. Della, whose alcoholic father broke into the family home and raped her when she was 14, later became pregnant by a boy who was an alcoholic. He also made her sister pregnant.

"Nearly half of the sexually abused schoolgirls I have known have become prostitutes, and an equal number are drug addicts."

One heartening message in the book

is the positive value, noted by Dr Birch, of home tuition for pregnant youngsters. In London they get around 10 hours a week, and half the girls in Camberwell followed this through until after their children were born. In those cases, 82 per cent of girls and their tutors reported that it had been a worthwhile experience - giving the girls for the first time a reasonable relationship with a teacher, a feeling that they were not a drop-out or a failure, and perhaps setting their sights on further education. Although only 2 per cent go directly to college, 20 per cent take a public exam and 14 per cent go to college later.

This most recent progress, given the earlier reports from teachers who had found these same girls to be extremely difficult, turning up drunk in class, making obscene phone calls to school staff, being insolent or having aggressive and wild outbursts.

Are you my sister, Mummy? by Dr Diana Birch, is available at £10, including post and packing, from "Youth Support", 30 Crystal Palace Park Road, Sydenham, London SE26 6UG. "Youth Support" is a registered charity for disadvantaged young people.

CAUSE OF PREGNANCY

CAUSE OF PREGNANCY	%
REGULAR SEX	69
CASUAL SEX	38
RAPE	3
(one girl regularly abused and black-mailed into silence)	
PLANNED	2
UNPLANNED	98

The Roman Catholic Church fights two governments about timetabling religious instruction

Bishops dismayed by 'English week' Pope fears drift over hour shift

FRANCE

The Church is fiercely opposing the Government's efforts to adopt the British pattern of a continuous school week.

It would mean foregoing the traditional Wednesday break and abolishing Saturday morning classes instead.

On Wednesday, nearly half of all primary children, including those in state schools, attend optional religious instruction classes organized by the Roman Catholic Church. The Church hierarchy estimates that if instruction is given on Saturday morning instead of Wednesday afternoon, the number attending would fall by a third.

But M. René Monory, the Education Minister, says that state school parents have pressed for a change to the so-called English week. He has pointed out that the Catholic schools were the first to introduce it, and that 600 of their 9,000 schools have already adopted it.

Recent ministerial policy has given local authorities the choice, but requires them to consult the local religious hierarchy.

It is a 117-year-old controversy which

has flared up again over a decision by two authorities to authorize schools in their departments to make the change. The bishops of Bourges and Angoulême, who are directly concerned, are taking legal action on the grounds that they were not consulted. The Archbishop of Paris, Cardinal Lustiger, threatens to do the same should Parisian education authorities follow suit. He is an old hand at such battles: formerly head of the Catholic schools hierarchy, he routed the previous socialist government's plans to integrate private schools into the state system.

Cardinal Lustiger, has suggested that primary pupils should be given both Wednesday and Saturday morning off, but M. Monory objects - it would mean adding a whole month on to the school year.

"There are only 32 working weeks in a year. Abolishing half a day would mean 16 whole days to compensate. With a four-day week, that's a whole month. We would have to do away

with the July or August holiday, and the whole country would be in uproar," he said.

The exceptionally short school year in France means that work is crammed into long, exhausting days which doctors and educationists say imposes too much strain on children. But any move to rationalize the school calendar meets with opposition.

The Church wants to avoid the marginalization of religious instruction and fears the divorce between its classes and ordinary lessons would become final once they were relegated to Saturday mornings.

According to the federation of teaching unions, the whole argument is "not about the mid-week break, but over the place of religion in our country. Parents, they say, should be free to arrange religious instruction for their children, but this should not have any bearing on the organization of the school year."

As one parents' association points out: "The divorce between Church and State in France took place long ago."

Mery Follain



The Church wants to avoid the marginalization of religious study.

Pope fears drift over hour shift

ITALY

A major row between the Vatican and the Italian Government over what appears a relatively trivial administrative matter - at what time of the school day religious studies should be taught - has been dominating the Italian press. It has also come close to toppling Giovanni Goria's five-party coalition government while still in its infancy.

In this overwhelmingly Catholic country there is no problem (unlike Britain) in catering to different religions in a multicultural society: religious education means instruction in the Catholic faith.

All teachers have to be approved by the diocese, and it is not unusual (especially in rural areas) to find parish priests working in state schools as teachers of religion. This "oversight" of the national curriculum by the Church is ratified by concordat (agreement between the Vatican and Italy) and stipulates that an hour of religious instruction per week should be provided "within the normal school timetable".

The hour is optional - parents may ask for their children to be exempted on moral or religious grounds - but a huge majority (92 per cent) of parents require their children to attend. So what is the row about?

The Vatican is concerned that a recent document produced by Education Minister, Giovanni Goria, and intended to clarify the Government's position on religious education, actually constitutes a threat to its status within the curriculum, since it could become a fringe subject taught only during the first hour (8-9 am) or the last hour (12-1 pm) of the school day.

This would conveniently solve the problem of what to do with pupils exempted from the "religious hour": they would simply arrive at school late or leave early. But the Vatican's fear is that such a timetable would lead to a gradual erosion of numbers attending, as more and more pupils put pressure on parents to seek exemption for them (and limit, a concordat, the Vatican, is not respected in the new proposals since the "religious studies hour would no longer fall within the normal school timetable": the Government's position, therefore, is unacceptable.

In the face of the Vatican's stern reaction, the Christian Democratic party, by far the largest party in the coalition, finds itself in an embarrassing position. After all, its special relationship with the Catholic church means not a small number of votes at election time.

Sig. Goria, a Christian Democrat, now has to face attacks from two fronts: the hard-line Catholics of his own party, and the liberal-internationalist consciences of the "lay" parties, which make up the rest of the five-party coalition and would like to see the Vatican's involvement in state education reduced, or removed altogether.

Meanwhile, angry school heads have been forced to decide how to incorporate the religious studies hour into their timetables.

In some schools, suffering from chronic shortages of space and unable to provide a room for quiet study for pupils exempted from the lesson, children may be seen wandering aimlessly through corridors. In other schools, they are required to remain in the classroom despite being authorized to take no part in the lesson. A group of pupils in a Bologna school has made an ironic request for carriage "to guarantee the right not to listen".

David Newbold

MATHE. The 1988 edition of "The Handbook of degree and advanced courses in Institutes of Higher Education, Polytechnics, University Departments of Education, in England and Wales," is now available priced £12.95. It is published by Mansfield, Notts NG18 2PA.

Staying on does not ensure a job, says study

BELGIUM

Jane Marshall reveals findings of an inquiry into unemployment among the under-25s

Girls in Belgium are particularly hard hit by long-term unemployment, although they achieve better school results and tend to study longer than boys. This was established by an inquiry whose publication last week coincided with unemployment figures, which were lower, especially in the numbers of young people out of work.

The inquiry - carried out by the sociology departments of the francophone university of Liege, and KUL, the Flemish Catholic university of Leuven - was limited to only a small sector of young unemployment, but one of special concern to the minister of employment, Michel Hansenne, who commissioned it.

It covers people under 25, who have had to sign on daily in order to qualify for benefit and who have been unem-

ployed for at least four years. They are entitled to payments as they have achieved a certain educational level: the inquiry excluded those who had not, neither did it include those who had gone on to higher education.

The researchers found that 88 per cent of the 3,252 surveyed were female, and 20 per cent were foreign-born. An unexpected finding was that "success at school does not appear to be a particularly advantageous element in the employment market", at least so far as this group is concerned.

Most of the young long-term unemployed had gained some vocational qualification, but had not quit school early (officially the school-leaving age is 18).

Most of the young people under review had attended a vocational school - the least desirable stream in Belgium education - and taken courses in "girls' subjects", such as needlework and dressmaking. Girls were also most likely to be hit by long-term unemployment, the inquiry found, with two thirds of such families having at least two children out of work.

Ministers plan protest at Iran's 'competition'

Belgian ministers were last week preparing to protest to the Iranian Embassy in Brussels for deluging francophone schools with anti-Iraq propaganda in the guise of a drawing and poetry competition.

Antoine Duquesne, Minister of Education for Belgium's French-speaking community, made clear his indignation at the Iranians. They had sent details of the competition to secondary schools in both the state and independent sectors in Wallonia and

Brussels without seeking his authorization or informing him of their action. He was preparing to send a circular to schools reminding them of their legal duty to refrain from any kind of political activity on school premises.

Also the Foreign Minister, M. Leo Tindemans, was sending a written protest to the Iranian ambassador. Literature introducing the competition - launched to mark the eighth anniversary of "the aggression and war crimes of the Iraqi regime against the Iranian people" - started, apparently benignly, in the form of greetings from young Iranians to Belgian school children. The aim of the competition, it said, was to discover "what the word 'war' means to the young people of Belgium".

A message claiming to be from Iranian schoolchildren described how "our school benches are from now on trenches destined for the front".

"War photographs showing dead and wounded are accompanied by a poem about a small child killed in the war, 'resistance' during his first lesson. Then followed copies of anti-Iraq reports, speeches and 'articles, the aim of which is to incite the young people to 'war'."

"Who is the war criminal?" "Who supports him?" "Who is the war criminal?" "Who supports him?"

Leo Tindemans protesting to the Iranian Embassy in Brussels.

Courses

1988 COURSES

Early application is advised for:

MANAGEMENT IN SECONDARY SCHOOLS

5-8 April 1988

Courses Director: Nelli L. Ransom, Principal, Wreake Valley College, Lelco.

Courses Members will choose 1 of 3 options:

MANAGING CURRICULUM DEVELOPMENT MANAGING TIMETABLE DEVELOPMENT MANAGING STAFF DEVELOPMENT

MANAGING THE PRIMARY SCHOOL

Courses Director: Stu Ball, Head of Mellow, Primary School & Community Centre, Leicester

A new national course for Heads, Deputies and those seeking promotion in Primary Education

For full details and application forms send a.s.e. to the Bookings Secretary, EDUCATIONAL COURSES, 84 Station Road, Rearsby, Lelco. LE7 8YU. Tel: 058 474 728 (ansaphone).

INSTITUTE OF EDUCATION, UNIVERSITY OF LONDON Education Management Unit SPRING TERM 1988

Applications are invited for the following management courses.

- 30/60 day 'Training the Trainers' programme for heads and deputies of primary, secondary and special schools and services
- 20-day programme (with CECOD) 'Managing Community Education'
- 2/3 day courses on specific management issues
- One-term fellowships and attachments.

Further details and application forms may be obtained from Linda Bruch, Education Management Unit, 58 Gordon Square, London WC1H 0NU. Tel (01) 631 1161.

TO PLACE YOUR COURSES ADVERTISING PLEASE CONTACT John Ladbroke on 01-253 3000 EXT 221

Wolsey Hall Oxford

GCSE/GCE
New GCSE distance learning courses cover all exam requirements; put you in phone and postal contact with the same tutor throughout.
GCE 'O' & 'A' level also available.
Free prospectus from: The Registrar, Dept. BB7, Wolsey Hall, Oxford OX2 6PR Tel: (0865) 52200 (24 hrs)

The value of vocational sixth-form studies has been argued out in two European countries. Paul Bendelow reports from West Germany, while Christopher Follett tells the Danish story

OVERSEAS

Future takes shape after two-year rift

WEST GERMANY

West Germany's regional education ministers have reached agreement on the future shape of sixth-form studies and the structure of the A-level equivalent *Abitur*.

The surprise settlement, following an unscheduled meeting in Bonn in October, peacefully concludes a two-year dispute which had threatened to undermine the nationwide validity of matriculation qualifications in the country's federal education structure.

Politically, the rift saw the socialist SPD government states ranged against the conservative CDU/CSU (16 states in a battle over the rule of the *Abitur* in a rapidly changing working world. The SPD wanted to push ahead with reforms introducing vocational elements into sixth-form curricula, whereas the CDU/CSU favoured a return to more traditional, broadly-based *Abitur* as an academic foundation for later specialisation.

The compromise achieved this month effectively confirms the status quo by guaranteeing nationwide recognition of a variety of approaches, while assuaging fears of a lowering of academic standards.

Herbert Schwier, North Rhine-Westphalia's SPD education minister, said the agreement represented "a little bit more tolerance" between the federal states. His CDU counterpart in Baden-Württemberg, Herr Gerhardt Mayer-Virfelder, claimed "a victory

for the *Abitur*" - one which prevented "the watering down of *Abitur* standards".

At the heart of the dispute were North Rhine-Westphalia's 22 *Kollegschulen* - experimental schools which provide twin-tracked courses leading both to the *Abitur* and to vocational qualifications.

Under the new agreement, these qualifications will be recognized nationwide, in return for extending the sixth-form to four years from the present three. The provision, and various amendments to course structures, represent "only slight changes", according to Herr Schwier, which leave unaffected the principle behind the *Kollegschulen*.

This principle - overcoming the traditional separation of "head and hand" in education is one of the Social Democrats' chief educational aims. It was, in fact, one of the provisions of the last major overhaul of the *Abitur* in 1972 - but very few of the innovations introduced then have remained intact.

The new provisions largely retain the present *Abitur* structure: students will continue to take eight subjects in their three years in the sixth form, but in the credits system leading up to the *Abitur*, more weight is to be attached to the six "foundational" courses, as opposed to the two main subjects. At present students must have either maths or a foreign language in their final examination subjects; this compulsory choice group has now been



Crowded out: the popularity of magnets is causing problems

Magnets attract too many

The magnet schools in Prince George's County, Maryland, were aptly named. They were designed to pull white children back into black-dominated urban classrooms, and achieve desegregation without the political embarrassment of forced busing. And they did exactly that. Prince George's, the 14th largest school district in America, has become a national example of what magnet schools can achieve.

And that is the problem. Beginning in 1985, with 1,591 pupils enrolled in magnet programmes, there are now 13,000 spread among 41 schools. They work in well-equipped, well-staffed classrooms, studying maths and science, foreign languages and fine arts. Their parents are delighted.

But that figure of 13,000 represents only about 12 per cent of Prince George's schoolchildren, and the magnet scheme has thrown the inadequacy of the education received by the remaining 88 per cent into sharp relief. Massive waiting lists have built up, and even parents who have camped out all night to register their children are unable to get them in.

What is more, the children on the waiting list are mostly black. They are not just waiting for places in French immersion classes, humanities courses, and a



Old style traditional *Gymnasien*, or grammar schools, will be affected by the new agreement

extended to include German. In addition, all sixth-formers in future will have to include at least two of these subjects in their eight original choices.

This particular change will be felt strongly in the state of Hamburg, which has up until now allowed sixth-formers the greatest freedom of subject choice. But even here, 80 per cent of sixth-formers already take two of these three voluntarily. Nevertheless, this provision is seen as a concession to those who felt that an *Abitur* course which neglected these "demanding" subjects, was worth less than an *Abitur* including them.

The agreement, which is expected to be signed in December, comes into effect from 1989 onwards for students entering the sixth form. An exception is being made for Hamburg, which will have a longer transitional period before finally coming into line with the rest of the country in 1996.

The time-scale for implementation was welcomed by the spokesman for the CDU/CSU-governed states, Herr George Göller, the education minister of Rhineland-Palatinate. He said adequate provision had been made for schools to become fully familiar with the new rulings, and the reaction is relief that a deadlock which threatened to undermine the country's educational homogeneity has been broken.

Strike brings pay rise but at a price

UNITED STATES

A record dispute has ended but victory is hard to appportion. Bill Norris reports

The great Chicago teachers' strike is over. Some 430,000 pupils, their summer holiday extended by a full month, are now back at school. So are 29,000 teachers, but some will not be there for long. To pay for the settlement, which gives the strikers a 4 per cent pay increase - less than half the amount demanded - some 1,300 full-time teachers and 400 part-timers are to be fired.

The Chicago Board of Education has insisted throughout that it has no money to pay increased salaries. It estimates that in order to find the \$43.8 million (£26 million) cost of the new agreement, it will also have to cut spending on magnet schools, mathematics and reading instruction, and special education programmes. The deal includes a further 4 per cent increase next year, but only if new revenue becomes available.

There was a happier outcome in Little Rock, Arkansas, where the state's first-ever strike of teachers ended after six days with a new contract. Strikes also ended in Detroit and Ohio, leaving the only unsettled disputes of the new school year in Massachusetts and Pennsylvania, where 9,000 pupils are affected. Altogether, this year's wave of classroom strikes has interrupted the schooling of 700,000 children in seven states.

rub salt in the wound the teachers have discovered that they will be required to work during their spring and winter breaks this year to make up the lost time. Even so, it will not be possible to work a full school year of 180 days, and because of the way in which American teachers are paid, this will reduce their actual pay rise to about 2 per cent - or \$14 a week.

Union officials are denying that this is a pyrrhic victory, claiming that a clause in the agreement promising smaller class sizes in problem schools will make it impossible for the board to carry out large-scale lay-offs. The teachers are not so sure. "It's pretty scary," said one.

As published strike by 2,000 teachers and other school workers in Elizabeth, New Jersey, also ended last week. There, the strikers returned to work under the duress of a court order, with no new contract.

They had defied the order for 15 school days, incurring individual fines of 30 days' pay, and a multiplying penalty for the union of several million dollars. The strike, over a 17.5 per cent pay claim, only folded when the judge ordered their instant dismissal.

There was a happier outcome in Little Rock, Arkansas, where the state's first-ever strike of teachers ended after six days with a new contract. Strikes also ended in Detroit and Ohio, leaving the only unsettled disputes of the new school year in Massachusetts and Pennsylvania, where 9,000 pupils are affected. Altogether, this year's wave of classroom strikes has interrupted the schooling of 700,000 children in seven states.

State aims for flexible curriculum

DENMARK

Mr Bertel Haarder, Denmark's Minister of Education, has unveiled far-reaching reforms for Danish *gymnasiums*, the upper secondary schools catering for 16-18-year-old students studying for the *studentereksamen* (A-levels) and other higher school-leaving certificates.

The reform, negotiated between the ruling Centre-Right minority coalition Government and the non-governmental Radical Liberal Party earlier this year, is to take effect next August - the start of the 1988/89 school year.

Broadly, the reform makes the three-year "A-level" curriculum more flexible, allowing for a better blending of science and arts subjects and a greater cross-stream interplay in upper secondary school studies. It provides students with the possibility of combining foreign languages (at a higher level) with new technological, economic and commerce-related subjects, as well as natural science and mathematics, making the barrier between arts and science subjects less rigid academically.

The reform calls for a strengthening of foreign language proficiency in science and mathematics students, offset by a similar improved level of science among arts/language students. This is in keeping with Government policy to make school education more relevant to the needs of business and commerce.

While English remains the first (compulsory) foreign language for all Danish *gymnasiums* students, all *gymnasiums* are now required to have real proficiency in two foreign tongues. One additional two-hour class is to be largely dispensed with in favour of those of longer duration (3-4 hours) in most key subjects.

Total weekly teaching is to be slightly increased to a maximum of 31 to 32 hours per pupil, with the maximum number of pupils per *gymnasium* class set at 28 in the new upper secondary schools. This less rigid structure is designed to reinforce the *gymnasium's* role in providing on all-round education for all upper secondary school students, not only for those planning to go on to university or other forms of higher education.

The new mix of science and humanities requires students of both streams to study at least two subjects at advanced level, over and above other general subjects at a lower academic level. This will pave the way for more balanced, less academically oriented studies for both arts and science students.



Bertel Haarder: unveiling reforms

Travel

Amsterdam Map

For a free poster map of Amsterdam 42 x 55cm charmingly illustrated. And all together with our brochure on individual inclusive holiday packages. Beautiful city, please write to:

Time Off Ltd.,

Chester Close, London SW1X 7BQ.

TALKBACK

SEX EDUCATION I

Licenced to pervert

Peter Mullen

The Department of Education and Science's new circular, *Sex education in school*, has some good things in it. Particularly commendable is the plain directive: "There is no place in any school in any circumstances for teaching which advocates homosexual behaviour, which presents it as the 'norm', or which encourages homosexual experimentation by pupils." The moral imperative here is strengthened by the danger of Aids; but the DES must not restrict itself to prohibiting the advocacy of homosexuality - it must also discipline schools and local authorities which defend homosexual behaviour.

But the circular does not go far enough as it slows that homosexuality may be described and explained: "to present facts in an objective and balanced manner so as to enable pupils to comprehend the range of sexual attitudes and behaviour in present day society".

This amounts to licence to teach perversions. And who is able to draw the line between describing and explaining on the one hand, and advocacy on the other? Certainly not impressionable teenagers whose curiosity about exotic sexual practices has been fired by teachers too zealous in explaining "the range of sexual attitudes and behaviour". Is this to include the attitudes and behaviour of some of the more wanton pop stars and soap opera sirens, for instance? In truth, it is better that some aspects of sexual behaviour are not mentioned at all.

Good, too, is the DES insistence that, "... giving an individual pupil advice on the provision of contracep-

tive advice to girls under 16 without parental knowledge or consent would be an inappropriate exercise of a teacher's professional responsibilities, and could, depending on the circumstances, amount to a criminal offence".

But there is a loophole: "where the syllabus for a course in biology requires that pupils demonstrate some understanding of the facts relating to family planning, teaching in accordance with that syllabus is permitted, notwithstanding any indication to the contrary in the governing body's policy statement on sex education". So a teacher approached for contraceptive advice would be within DES rules if he replied, "I'm not allowed to tell you, Sharon, but if you want to know, join Miss Whatist's biology course".

Not good is the provision that, "Governors will have the discretion to reject requests from parents for their children to be withdrawn from any sex education to which they object". I should not wish, for example, my children to be taught about homosexuality and the full range of society's sexual attitudes and behaviour. Besides, the right of a parent to withdraw his child from sex classes is a fundamental moral right. And the governors' deleterious powers, prescribed here by the DES, contradict the circular's admirable opening statement: "Parents are the key figures in helping their children to cope with the physical and emotional aspects of growing up".

Excellent is the injunction, "Sex education should be given in such a manner as to encourage pupils to have

the regard to moral considerations". My reservation here, though, is, bluntly, "whose morals?" The circular talks of "the full range of sexual attitudes and behaviour in present day society". That implies moral chaos.

Primary schoolchildren, says the DES, should be taught how to "cope with the physical and emotional challenges of growing up" and they should be given "an elementary understanding of human reproduction". This sounds fine, but in my experience almost all sex-educators concentrate exclusively on the physical: all gynecology and no human affection. The textbooks present sexual relationships as if they are a branch of mechanical engineering.

It is good to learn that, "In the secondary school... opportunities for considering the broader emotional and ethical dimensions of sexual attitudes and mores may arise." But that "may" should become "must". I used to teach in a school where the only concession to "emotional and ethical dimensions" was an annual visit from the consultant venereologist with his horrifying colour slides.

Two cheers, then, for the DES. It is trying to offer guidelines on this sensitive subject in a society which does not always cling to the old moral certainties. But if I were asked to offer some advice of my own, I should say that the whole concept of "sex" as something which one "has" - like a headache or a very good dinner - is inimical to what is really needed: guidance for our pupils on human relationships.

The language of sexual instruction - as the Aids publicity has shown - has become glib, mechanical, cut off not only from its moral roots, but from its human aesthetic roots as well.

The Reverend Peter Mullen is vicar of Ticknall and Billon with Ticknall, York and a chairman of governors.

SEX EDUCATION II

Positive gay images

J Martin Stafford

Although the recent Department of Education and Science circular on sex education covers a range of topics, the one which attracted the most media coverage was - predictably - the treatment of homosexuality. It has been widely supposed that the purpose of this document is to curb the "positive images" policy adopted by the Inner London Education Authority and several other L.E.A.s. I doubt that it will prove effective in this, not so much because it lacks the force of law but because it is evasive, equivocal, and at times almost contradictory.

It is reassuring to note that "The Secretary of State considers that the aims of a programme of sex education should be to present facts in an objective and balanced manner so as to enable pupils to comprehend the range of sexual attitudes and behaviour in present day society... and to make informed, reasoned, and responsible decisions about the attitudes they will adopt both while they are at school and in adulthood".

However, it also observes that "It must be recognized that for many people, including members of various religious faiths, homosexual practice is not morally acceptable, and deep offence may be caused to them if the subject is not handled with sensitivity... This conveniently understates the problem in that such people will be offended - not to say outraged - if homosexuality is given any mention which is not entirely censorious and negative."

Admittedly, the predicament of the DES in trying to reconcile the needs of homosexuals with the bigotry of zealous is unenviable, but the resultant mish-mosh of contradiction is surely no basis for policy at all.

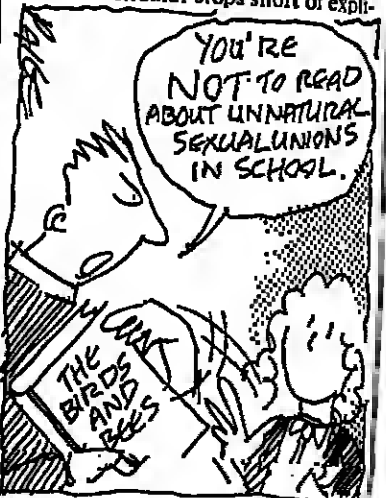
The circular twice reiterates the requirement of the 1986 Education Act that sex education should encourage pupils "to have due regard to moral considerations and the value of family life". Indeed it should. But what is a family? In particular, does a stable household which comprises two persons of the same sex constitute a "family"?

Enslaving a policy on this is - in salutary contrast to the DES circular - clear and unambiguous. Insisting that homosexuality, like heterosexuality, should be discussed in the context of love, personal relationships, and respect for others, it speaks not of family life but of "home life".

Perhaps the most widely quoted sentence from the DES document is that "There is no place in any school in any circumstances for teaching which advocates homosexual behaviour,"

which presents it as the "norm", or which encourages homosexual experimentation by pupils."

To acknowledge that a significant proportion of the population will grow up to be homosexual and to foster respect for their caring relationships is, I submit, not to advocate homosexual behaviour but merely to recognize it as a fact of life and to respond to it constructively. Inasmuch as heterosexuals outnumber homosexuals, then heterosexuality is more usual than homosexuality, but this does not imply that homosexuality is less legitimate. The DES circular stops short of expli-



cit denigration but reading between the lines might begot a suspicion that that is precisely what is intended.

How, then, are the "positive image" boroughs affected by the circular? I should say hardly at all. Ealing's policy is quite compatible with the DES guidelines and is certainly more clear-headed and consistent. It provides reassurance that there is no desire to proselytize (even if that were practicable) but only "to create an educational atmosphere in which all pupils are able to recognize, with confidence, their developing sexuality".

It gives no countenance to promiscuous, exploitative, or irresponsible behaviour, but rather - as stated above - requires that homosexuality be discussed in the context of love, personal relationships, home life and respect for others. Moreover, it is without the revolutionary ravings which once accompanied assertions of gay rights. It should therefore commend itself to people of all political persuasions.

J Martin Stafford is a former teacher. His article "In defence of gay lessons" is due to appear early next year in the Journal of Moral Education Vol. 17.

DIRECTED TIME

A recipe for mediocrity

Stan Bunnell

Directed time is a blunt-edged weapon to get teachers back to parent and staff meetings. In this it has succeeded. Excellent. A time limit to meetings may well concentrate the mind wonderfully, and remove the common scandal of time-wasting, unproductive and badly-chaired discussions. Splendid.

Despite the current emphasis on the pursuit of excellence, however, directed time may well be a recipe for mediocrity and the impoverishment of the quality of school life.

Committed members of staff, even in terms of rigidly controlled and selected activities, can easily cover the limit of 1.265 hours. Pastoral activities, curriculum change, essential participation in routine meetings may push any teacher over the allotted hours, even without involvement in areas such as music, drama or sport.

You have to distinguish between directed and voluntary time. Some (first-year, residential, field courses) constituting a rescheduled element in a syllabus cannot be voluntary. The easy and safe administrative solution would be to shut whole areas which are vital to the life of the school

into the voluntary area and wait to see what happens. In the best of all possible worlds, that might be a gamble worth taking. But, after years of union action, we can no longer expect unquestioning commitment. The pressures are towards directed, not voluntary activities. Even in the best of schools with strong tradition of staff commitment, some activities are going to be lost, unless they are directed.

We are all engaged in a crazy, unprofessional game of Snakes and Ladders, where directed time will be the ladders and voluntary participation the snakes. The one will be regarded as first and the other as fourth division pursuits.

It is schools with a rich and varied community life that are facing problems, the mediocre, lifeless schools will gain by ensuring a minimum level of participation. Have the "bright day" of voluntary professional commitment gone? Are we heading for the "dark" of the philosophy of clocking on and off? The danger in the English concept of no good school is immense.

Stan Bunnell is head of Queens School, Bushey, a large Hertfordshire comprehensive.

FEATURES

A true life

Nigel Richardson recalls one of the most celebrated teachers of the last century who died 100 years ago this week

In 1853, an unknown young clergyman arrived in the East Midlands to take charge of a small country grammar school. The weather was wild, his health uncertain and his pupils openly rebellious; they let off squibs at prayers and deliberately arrived late for his first lesson. Thirty-four years later and a century ago this week he died, leaving behind a boarding school of 300 boys and a personal reputation which stretched nationwide and beyond. According to one of his successors, Lord Wolfenden, Edward Thring was one of "the half-dozen most important educational theorists and practitioners of the 19th century".

Born in 1821, the fifth of seven children of a Somerset village parson, Thring's first education took place in Ilminster - "an old-fashioned school of the fog-flap, milk-and-water-ut-breakfast type". Then came Eton, the first two years under Dr Keble. Keble taught a hundred pupils at a time; the scholars were locked into Long Chamber for 10 hours a night with no adult supervision. Bullying was rife; Thring became known as "little die-fist" for refusing to surrender his lives court to bigger and stronger rivals, and rose to be captain of school.

Five years of classics and theology in Cambridge led to ordination and a curacy in the slums of Gloucester. Thring's health broke down - but not before he had gained crucial teaching experience in the National School there: "Never shall I forget these little labourer's sons... they gave me the great axiom 'the worse the material, the greater the skill of the worker'; they lived in me a supreme contempt for emptying out knowledge-lumps in a heap... and calling it teaching".

Sent to Europe to rescue his brother Geoffrey from an impending engagement to a Fraulein Marie Koch, Thring promptly became betrothed to her himself. Finding permanent work was now urgent, Holden of Uppingham bent Thring to the headmastership of Durrham School; Thring was appointed to Uppingham and promptly told a friend: "I think I have found my life's work today".

Thring's career was dominated by four key ideas. Every boy must receive full and equal attention. He denied the belief attributed to Arnold at Rugby that unpromising pupils should be got rid of, regarding him as "a great man but a bad schoolmaster... A good teacher ought to rejoice in a stupid boy as an interesting problem. To teach an upper form requires more knowledge, a lower one more skill in the teacher".

Boys not intellectually gifted must have the chance to shine in other ways. The curriculum was broadened beyond Latin and mathematics into French, German, science, history, art, gymnastics and carpentry; Thring was keen on woodwork. Games were to be encouraged but in moderation: "they are much limited by age. Music pleases... the little boy's hope, the elder's pleasure, an all-pervading influence".

Every school had to have "mischinery" - an efficient organization, with good buildings and equipment - "the Almighty Will, the supreme and final arbiter of our schools". Finally, there were the twin phrases "True Life" and "Life Power", referred to so often that his pupils mimicked them. Education must concern itself with every aspect of life, moral and spiritual as well as physical and intellectual. These principles were no doubt expounded to many a prospective parent whom he met off the train at Seaton three miles away, and marched back to Uppingham, his sleeping at his side.

Machinery and men came quickly. Within four years, he was £2,750 in debt through guaranteeing additional staff salaries. Men of means were persuaded to buy or build boarding houses; they drew the profits but Thring held the power of recommending would-be parents to a house and insisted that no house should exceed 30. The ideal maximum; class size was to be 23, 330 the maximum school total. "If there are more boys in a school than the headmaster knows personally, he cannot be headmaster in the case of those boys he knows little of, and the masters who know



Edward Thring: 'He fed them with a faithful and true heart and ruled them with all his power'

them become superior to the headmaster".

He built a chapel, assembly hall, library, workshops and laboratories, a gymnasium, gardens and an aviary. He frequently asserted the importance of a study for every boy as a refuge, and of curtain partitions in dormitories, a reaction against his Eton days. In 1869, Uppingham became the first public school to establish a mission to the poor of London. Yet he still taught extensively. Some thought he terrorized the younger boys too much to be effective, others that his question-and-answer methods to get the conclusion he wanted in sixth-form divinity classes were unscholarly, and that he did not train boys effectively for university exams - a criticism not borne out by the results of a number of subsequently notable scholars.

Thring's surviving letters are frequently self-playing and sometimes downright vindictive towards his critics. But his outward self-confidence was bound to arouse opposition, and he could be extremely ruthless with adult and pupil alike. There were dramatic disciplinary confrontations. He tended to hold the community responsible for the actions of a few and to punish it accordingly; an early group of preceptors revolted. The ring-leaders were expelled and the rest forced to sign a public pledge that they would enforce the rules.

There was one notable clash with a parent. When he caned a group of boys who defied his warning that they must return to school on time after a holiday, a Mr Jackson informed the press. There was much public comment, one journal commenting drily that "if Mr Thring does not train his boys' minds, he certainly teaches them to mind their tails". Undeterred, when he later found a boy's cricket notice listing terms he headed "Those who have been beaten by Mr Thring" and "those who have not", he observed that "if that game is played again, all the players will be on the same side".

There were regular tussles with staff. Never a compromiser, Thring totally dominated his stage and, while most masters were intensely loyal to him, a sadly large number of able men clashed with him and moved on. Conflicts were recorded

In characteristically lurid terms; one of his early appointments was described as: "a perpetual anxiety, a canker in our work", yet later became a successful headmaster elsewhere, and later on an Inspector of schools.

No battles were more bitter or protracted than those with his governors. With a few notable exceptions, they were worthy and well-meaning, but unimaginative and parochial. They reacted cautiously to their restless, ambitious headmaster with his expensive schemes. At times they seemed to Thring unending and deliberately obstructive - especially in the greatest crisis that he and his school ever faced.

In 1875-76 the school was hit by typhoid three times in eight months. Six pupils died; parents began to withdraw their sons. The town authorities still refused to act against wells shown to be hazardous. Thring decided that the school must

'A good teacher ought to rejoice in a stupid boy as an interesting problem'

go elsewhere until they relented. But the governors refused all help in this, financial or otherwise; they were responsible for "the school at Uppingham" and they stuck by the letter of their charge. Thring took over a hotel at Borth near Aberystwyth, a special train transported his equipment, cricket roller and all. In a remarkable display of confidence, all but a handful of parents sent their sons after him. The exile lasted 12 months and showed Thring's infectious enthusiasm at its best, although it was years before the governors and the charity commissioners agreed on how much he should be reimbursed. In subsequent school sermons, Thring regularly drew parallels with the Old Testament Israelites. "He thinks that the Exodus was nothing compared to Borth," commented one observer.

Meanwhile Thring had played a major role in founding the Headmasters' Conference. This followed swiftly on his battle against the Taunton Commission's attempt to end Uppingham's status as a church foundation and to give its governors - who had sent the commissioners ideas about how the school should be run without informing him - wider powers of control over educational issues. His entire staff had offered to resign with him and 80 per cent of the parents had been persuaded to threaten withdrawal of their sons before Thring won the day.

One of the by-products was a conference of fellow headmasters which Thring proposed should become an annual gathering. "If I may fairly claim to have laid the egg which developed into the Headmasters' Conference, Thring did all the chucking necessary", observed Mitchinson of King's Canterbury. He and Wellwood of Tonbridge travelled north together to the first conference, in Uppingham in 1869, Wellwood commenting: "Thring must be a wonderful man to have made a school like this in the midst of such a howling wilderness."

Thring's final years were less controversial, although there was increasing pressure on him to propel Uppingham along the fashionable path to greater athleticism and militarism. He wrote a best-selling book *The Theory and Practice of Teaching* and became interested in girls' education. In 1887, he invited the London Society of Schoolmistresses to hold their annual conference at the school - "delightful company, not a trace of woman's rights among them". One wrote afterwards, "No school has ever impressed me like Uppingham; other schools may be bodiless corporate but Uppingham has a soul."

A few weeks later he wrote his final diary entry: Saturday, October 15th - "And now to bed, sermon finished and a blessed feeling of Sunday coming". He was taken ill during the chapel service and died six days later. At his final house prayers he read the 76th Psalm "So be fed with a faithful and true heart, and ruled them prudently with all his power" - a fitting epitaph.

Nigel Richardson is second master of Uppingham School.

Activity Centres

SKERN LODGE
outdoor centre
THE PROFESSIONALS IN OUTDOOR EDUCATION
SAFETY FIRST
PROFESSIONAL STAFF: Teachers/B.C.U.J. M.T.G.V.A. etc.
BEST equipment, life-jackets, wetsuits etc.; NO skiving
STAFF RATIO: 1 instructor to 8 pupils or less
FULL FIRE Certificate.

QUALITY AND VALUE
WIDE CHOICE from over 25 activities.
SEPARATE Staff facilities.
1 Staff free for every 8 pupils.
Write or phone NOW for brochure:
John Milne & Martin Robinson, Skern Lodge, Skern, Harrogate, Wetherby, Wetherby, North Yorkshire YO21 1ND. Telephone 01937 75882. (0087)

HARROW HOUSE - SWANAGE - DORSET
Residential Centre - open throughout the year to groups of all ages and interests.
Magnificent setting in its own grounds of 5 acres on prime position with views overlooking the sea, coastline and Purbeck Hills.
Excellent Study - and Recreation Facilities:
Tennis, 3 Squash Courts, Weight-training, Swimming Pool, Gymnasium, Multi-purpose Sports Centre, 2 Squash Courts, Clubhouse (Darts, Billiards, Snooker, etc.), Croquet, Lawn Tennis, etc.
Canteen, Lecture and Seminar Rooms, Equipment, Studio and Projection, Closed Circuit Television, Colour TV, Sports Coaching available.

Full colour Brochure from HARROW HOUSE, Harrow Drive, Swanage, Dorset BH25 1PB. Telephone 01929 644111 Telex 417222. (0090)

CADARN TRAIL RIDING FARM
Riding and Pony Training courses in Brecon Beacons National Park.
TRAIL RIDING A SPECIALITY
Accommodation for up to 44 pupils.
Age 8-17. All standards of riders.
Holidays, weekends, weekdays.
BROCHURE - 04974 800.
(24 hr. answering service)
Cadarn Trail Riding Farm, Valford, Trecothick, Brecon, Powys. (0087)

CADARN TRAIL RIDING FARM
Riding and Pony Training courses in Brecon Beacons National Park.
TRAIL RIDING A SPECIALITY
Accommodation for up to 44 pupils.
Age 8-17. All standards of riders.
Holidays, weekends, weekdays.
BROCHURE - 04974 800.
(24 hr. answering service)
Cadarn Trail Riding Farm, Valford, Trecothick, Brecon, Powys. (0087)

CADARN TRAIL RIDING FARM
Riding and Pony Training courses in Brecon Beacons National Park.
TRAIL RIDING A SPECIALITY
Accommodation for up to 44 pupils.
Age 8-17. All standards of riders.
Holidays, weekends, weekdays.
BROCHURE - 04974 800.
(24 hr. answering service)
Cadarn Trail Riding Farm, Valford, Trecothick, Brecon, Powys. (0087)

CADARN TRAIL RIDING FARM
Riding and Pony Training courses in Brecon Beacons National Park.
TRAIL RIDING A SPECIALITY
Accommodation for up to 44 pupils.
Age 8-17. All standards of riders.
Holidays, weekends, weekdays.
BROCHURE - 04974 800.
(24 hr. answering service)
Cadarn Trail Riding Farm, Valford, Trecothick, Brecon, Powys. (0087)

CADARN TRAIL RIDING FARM
Riding and Pony Training courses in Brecon Beacons National Park.
TRAIL RIDING A SPECIALITY
Accommodation for up to 44 pupils.
Age 8-17. All standards of riders.
Holidays, weekends, weekdays.
BROCHURE - 04974 800.
(24 hr. answering service)
Cadarn Trail Riding Farm, Valford, Trecothick, Brecon, Powys. (0087)

CADARN TRAIL RIDING FARM
Riding and Pony Training courses in Brecon Beacons National Park.
TRAIL RIDING A SPECIALITY
Accommodation for up to 44 pupils.
Age 8-17. All standards of riders.
Holidays, weekends, weekdays.
BROCHURE - 04974 800.
(24 hr. answering service)
Cadarn Trail Riding Farm, Valford, Trecothick, Brecon, Powys. (0087)

CADARN TRAIL RIDING FARM
Riding and Pony Training courses in Brecon Beacons National Park.
TRAIL RIDING A SPECIALITY
Accommodation for up to 44 pupils.
Age 8-17. All standards of riders.
Holidays, weekends, weekdays.
BROCHURE - 04974 800.
(24 hr. answering service)
Cadarn Trail Riding Farm, Valford, Trecothick, Brecon, Powys. (0087)

CADARN TRAIL RIDING FARM
Riding and Pony Training courses in Brecon Beacons National Park.
TRAIL RIDING A SPECIALITY
Accommodation for up to 44 pupils.
Age 8-17. All standards of riders.
Holidays, weekends, weekdays.
BROCHURE - 04974 800.
(24 hr. answering service)
Cadarn Trail Riding Farm, Valford, Trecothick, Brecon, Powys. (0087)

Come back teacher

The national curriculum is widely expected to force primary schools to abandon the integrated approach in favour of more formal subject teaching. Linda Hall argues that there was little to recommend such progressive practices anyway

The integrated day alters utterly the teacher's role. In the short introduction to Part Six, the Plowden Report insisted that the "teacher's role is less crucial than was formerly thought". The teacher was to be guide not instructor, "leading from behind". Teaching itself was actually denigrated: "The school is not a teaching shop". Apart from misrepresenting teaching as something akin to promoting mere rote learning, Plowden effectively deskilled the teacher and gave her a backseat in the process of children's learning.

Indeed, Bernstein observed wryly in *Perceptions on Plowden* that "of the 46 plates (of illustrations) which occupied virtually the whole of the chapter on Aids to Learning and Teaching only two contain a teacher. One might be forgiven for imagining therefore that teachers are aids to nothing."

Bernstein also noted that Plowden had crudely dichotomized "being told" and "finding out", as if they were two mutually hostile ways of learning. R S Peters went so far as to complain in the same volume that as a result of Plowden we are now turning out "teachers for whom teaching has become a dirty word". What is surprising is that

extremely weak.

The lack of a sustained input of teacher time during an integrated day is of most serious concern. This is because children can pursue their interests only at a rather superficial level. As children, they lack the facility to deepen study and understanding for themselves. For this a trained adult is essential. Yet this person is largely absent in an integrated day.

It is the teacher who has the skills to devise a challenging sequence of structured steps (otherwise known as a lesson) which will promote effective learning. It is the teacher who can so organize those steps as to incorporate a series of gradually more demanding questions which will encourage children to apply their minds beyond a mass of facts in order to make logical connections, to see implications and draw conclusions. In other words, the teacher alone can promote the higher order intellectual skills.

Even if she does occasionally intervene or go to the help of a child or group, given the unpredictable distractions of the integrated day, the teacher's presence must inevitably be less effective, because it is more short-lived, than in a more structured system. It goes without saying, for

the child's own peer group which is of questionable value.

The theoretical underpinning for the integrated day's total overthrow of the traditional curriculum of separate subjects taught at different and predetermined times during a day or week was Plowden's unfortunate insistence on "the seamless web of knowledge" - that to separate knowledge into distinct compartments is artificial and arbitrary. From this it seemed to follow naturally that the primary school curriculum should become undifferentiated. I say "unfortunate" because, as R S Peters makes it quite clear, Plowden was wrong in this assertion.

"Though it is perfectly true that many problems require a combination of forms of knowledge for their solution, it does not follow from this that distinctions between forms of knowledge are arbitrary. It took acute thinkers such as Hume and Kant a considerable time to establish mathematics is different from empirical science in important respects and that morals is not really much like either of them. Are we suggesting that philosophers since the 17th century have been wrong about such matters? Are we to go back and maintain that religion is indistinguishable from science and that morals is similar to geometrical demonstration?"

Surely one of the great achievements of our civilization is to have gradually separated out and got clearer about the types of concepts and truth-criteria involved in different forms of thought. But, of course, the different forms of thought make use of each other once they have been differentiated out.

For intellectual clarity, differentiation of forms of thought (subjects) is crucial and of particular benefit to the primary child who has to have some solid foundation of facts to inform any later pursuit of more general principle.

To outsiders (parents and the public alike) the integrated day in actual practice seems to be chaotic. It often is as children wander at will round the school pursuing what interests them momentarily. It is quite possible under such a system for a child to waste his time so far away from his undisturbed life that he fits from one activity to another.

There is a real danger in schools employing this system that children will become mental butterflies chasing activities as interest dictates, never being required, as in a class taught by a teacher, to persevere at a task for a given length of time.

Another worrying possibility is that the elements in the timetable selected by the child for himself could be unbalanced. It is quite conceivable that under this system a child could spend 10 minutes on maths and 5 on English, crowded into the end of the afternoon and the rest of the time he drawing or colouring pictures, or copying down undigested facts in inappropriate language from an encyclopaedia or he simply drawing. I do

'The primary child has to have some solid foundation of facts'

know children who have arranged their daily menu in just this unbalanced way.

It is small wonder that some parents take fright, especially when their own experience of school was usually of much more formal methods. Even the perceptive or tutored outsider must be concerned how far teaching's crucial job of promoting and monitoring progress can be carried out effectively.

In theory teachers are meant to keep extensive records of what each child is doing. This is not too hard in a more formal system, as lesson plans and mark books testify. In practice, however, most teachers in an integrated system find it too time-consuming and difficult to accomplish. After all, 30 children's choices can be so diverse and disparate even on a daily basis that it would require a race of superhumans to be able to build learning objectives into every choice that each child makes.

Instead, the system seems to take on trust that children will be learning something whatever they are pursuing. Yet without learning objectives it is impossible to assess the success or otherwise of the system as a method of promoting children's learning.

The Plowden Report with its negative attitude to teaching and the teacher reflected the fashionable 1960s tendency to confuse authoritarianism with authoritarianism. It was perhaps only natural that teachers, denied a really positive role, should succumb to a massive loss of nerve and themselves equate class teaching in all its variety with a rigid formalism which had long since disappeared.

Linda Hall was a senior lecturer at Bournemouth College of Higher Education.



Back in the front seat: formal class teaching exposes children to the language required for complex thought

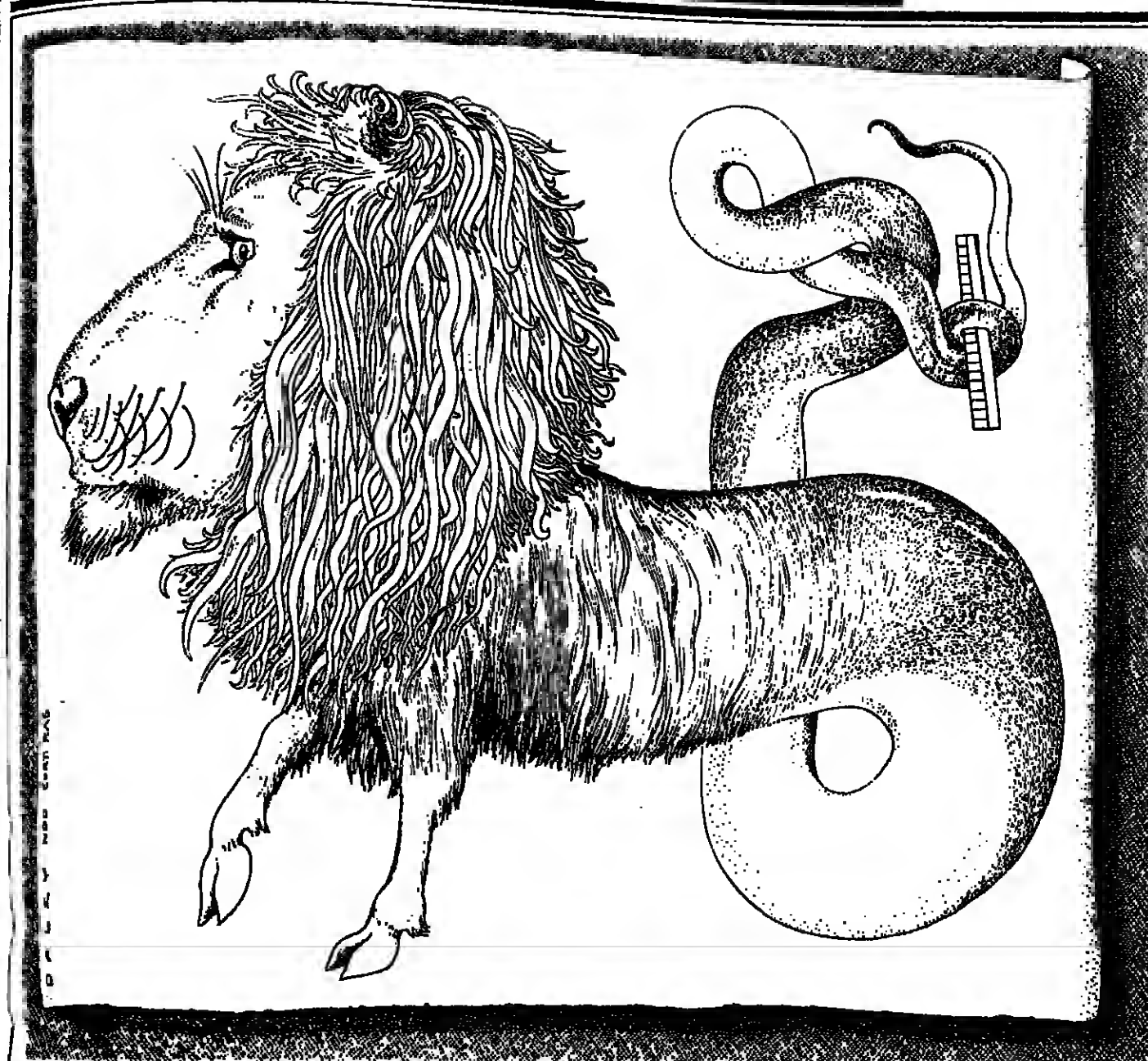
professionals should have been so willing to embrace methods that would effectively downgrade their role.

For it is undeniable that the integrated day renders untenable if not impossible any prolonged formal teaching of a class. Instead, a teacher's job is the recessive one of a manager of resources, a supervisor, an "arranger of the context" as Bernstein put it, who gives out instructions for the day which frequently amount to no more than "now get out your folders and carry on where you left off yesterday". This does seem an incredible waste of a teacher's wider knowledge and superior command of the base, as well as the higher intellectual skills which are likely to remain largely untapped during an integrated day as children here off in pursuit of their interests.

However, it is a point worth making that it is easier for the teacher whose own skills are weak to remain undetected in such a system. As a case in point, I once saw a former student of mine teaching an integrated day, who had failed two curriculum courses including English and whose command of even the basics of English was

instance, that she can never spend with one child or group the full 40 minutes or so that she would spend if teaching a predetermined subject to a whole class in a more formally organized school. The more time she does spend with one child or group, the less she can give to others. Some children will inevitably receive no personal attention at all. Lionel Elvin, a former director of the London Institute of Education, was protesting as long ago as the 1960s that "our problem is not with too much guidance of the young (as in the old elementary school) but too little".

It is clear, therefore, that the integrated day must severely limit the amount of adult talk that children are exposed to. Nothing could be more damaging for, as the Russians Luria and Vygotsky suggest, language development and intellectual development are inextricably linked. The capacity of the brain to engage in complicated thought processes seems to be closely related to the growth of a wide, precise vocabulary and complex syntactical structures. It is only during exposure to these complex linguistic structures, but what the integrated day fails to do, that



The quest for 'standards'

Geoffrey Howson (right) and Roger Murphy (below) question the Government's claim that national tests are 'a proven and essential way' to raise achievement.

Before I am written off as another winging educationist (I have written, *TES* September 18) who is going to trot out weak and inadequate excuses for the education system, I might to clarify that I am intensely interested in assessment and agree wholeheartedly that a national curriculum, if it is to work, needs to be supported by an appropriate and rigorous system of pupil assessment.

The problem with the current proposals for national tests at 7, 11, 14, and 16 is that far from fulfilling the hopes of their proponents, they are ill-conceived and misguided. They are also potentially disruptive and likely to do enormous damage to the quality of state education.

The national curriculum consultation document talks of a system of national testing for 7, 11, 14 and 16-year-olds, as "a proven and essential way towards raising standards of achievement". Where is the evidence to support this claim?

The evidence is actually much more equivocal. What we do know is that large-scale national testing schemes around the world have often come to be regarded as a major barrier to the raising of educational standards. Again and again they have led teachers to teach pupils to pass tests at the expense of developing the full range of pupils' strengths and offering remedial help for weaknesses.

The idea that national tests can keep track of what is going on in schools never simplifies a vastly complicated set of events.

A tremendous amount of exciting developing work is going on which has moved us forward considerably in our thinking about educational assessment. But much of it points towards a very different approach to improving pupil assessment.

School-based developments have gone a long way towards integrating assessment more closely with the curriculum aims of schools, education authorities and the government, and the most effective teaching methods that can be used to promote those aims. Such systems have been developed to make assessment more positive experience for pupils, motivating them and giving them positive and constructive feedback on their progress.

Much of this development work has occurred within DES-funded Records of Achievement

pilot projects. Sadly the existence of this major assessment initiative is only given a passing mention in the consultation document. Instead, the approach appears to draw much more on the ideas behind the old 11-plus examination.

Age-related attainment targets hark back to that era. It is widely acknowledged that for a variety of reasons children make different rates of progress in the various areas of the curriculum. To set up a system that denies this reality is crazy.

There is nothing wrong, in principle, in setting learning targets but what makes a target a good one is whether or not it is appropriate for the learner given his or her particular capabilities, stage of development, and the circumstances under which he or she is operating.

The curriculum working parties, however brilliant, are never going to be able to devise targets that are brief and simple and appropriate for more than a small proportion of children at each age. They have been given an impossible task, made even more complicated by the advice to that working groups from the Secretary of State that: "So far as possible I want to avoid having different attainment targets for children of different levels of ability".

I am also concerned about the narrowing influence that such attainment targets may have on the curriculum and the way it is taught throughout the country. How can these curriculum working groups encapsulate in their targets enough of what is desirable in a broad, balanced and relevant curriculum? This is the kind of challenge that is all too easy to give to a group of experts and ask them to come back with the answer in a few months time. Getting the right answer or even something that is even vaguely sensible is another matter.

We have already been down this road with the GCSE grade criteria working parties, and I

lowing the widespread prediction of the difficulties they were going to meet in such an appealing, but nevertheless impossible exercise, they ran into the ground. GCSE has, as we now know, had to be introduced without any grade criteria, and it remains highly doubtful as to whether any are likely to be added in the foreseeable future.

The final issue I would like to raise relates to both how you assess the targets, assuming that some can be agreed, and then report the results to your awaiting audience. Mr Baker, we are told, wants something fairly simple like a five point grading scale, and he also wants teaching to be closely involved in setting and marking the tests. But intensive teacher involvement in national testing will entail expensive in-service training programmes, and perhaps, further GCSE-like debates about payments for additional duties.

Meanwhile, the Assessment of Performance Unit and the GCSE Exemplary Groups are waiting in the wings, ready to be called into action like the army during the miners' strike. It isn't hard to imagine national testing being carried out with hardly any teaching involvement at all. This will place it in a very different and unattractive relationship with on education, political body blows.

And what about that five point grading scale? How does one summarize the complexities of achievement across a range of attainment targets, produce a single grade on a five point scale, and still convince oneself that one is providing useful and meaningful information about the progress of children in our schools?

Roger Murphy is director of the Assessment and Examination Unit of the Department of Education, University of Southampton.

Some years ago, prior to visiting a Middle Eastern country I was told in confidence by the then Ministry of Overseas Development to beware us in "that country the authorities confuse testing with teaching." I wonder how many visitors to Britain will now be given similar warnings?

That something must be done to raise standards and aspirations in British schools, and, particular, in their teaching of mathematics cannot be denied. Our standards, especially those reached by "low attainers," would appear to compare badly with those of, say, Japan, West Germany and the USSR. The *National Curriculum 5-16* is a response to this problem. But what are its chances of success?

The notion of a single national curriculum has attractions, for it would seem to operate well elsewhere. Nevertheless, one might hope for something more forward-looking less compartmentalized and less like that of Joseph Priestley's *Course of Liberal Education for Civil and Active Life* (1768). The substitution of the ill-defined subject, technology, for Latin would hardly seem a major advance.

Yet what does a national curriculum mean in practice and how is the introduction of a standard curriculum likely to improve the teaching of mathematics? The Second International Mathematical Study showed there are wide variations in the mathematics taught in different schools in all countries.

France, for instance, is often quoted as the great example of uniformity. Yet, although French teachers tended to teach the arithmetic and algebra content of the national curriculum, they often chose to omit topics in geometry, measurement and probability and statistics.

The notion that constant testing raises "standards" is one I have frequently met in the Second and Third Worlds. Standardized tests have also been much used in the notoriously under-performing US system. Indeed, with a weak teaching force such strategies do offer benefits.

But can this justify the suggestion in paragraph 23 of the consultation document that the setting of "nationally prescribed" and "externally moderated" tests at the ages of 7, 11, 14 and 16 is "a proven and essential way towards raising standards of achievement"? If it is "proven," may we know in which country (and in which century)? If it is "essential," how, for example, have Japan, Germany and the USSR managed to raise standards without such a device?

A strong argument can be made for setting clearer attainment targets for teachers. Some way to ensure a closer match between these targets, teacher expectation and pupil achievement must be found. The mechanism proposed in the consultation document would, however, seem over-elaborate and expensive in time, money, administrative and teachers' goodwill.

Simply setting tests and targets will, do little to overcome the root causes of our poor performance. What distinguishes the English system from the more successful ones of Japan and West Germany? Since Japan is essentially comprehensive and Germany tripartite, the structure of the system is clearly not decisive. There are, however, no shortages of mathematics teachers in these two countries, for in both teachers are well paid and esteemed and as a result, better qualified.

According to the SIMS study, 91 per cent of the Japanese maths teachers of 13-year-olds and 97 per cent of those who teach 17-year-olds were fully qualified. The corresponding figures for England and Wales were 62 and 66 per cent.

Not only does teaching enjoy a high status in these countries but so do education and schooling. Society and family supply pupil motivation lacking in England - perhaps too much motivation is the case of Japan.

There are other differences in the approaches to teaching mathematics. A significant factor is the emphasis given to a particular topic at any one time. I share current US misgivings about a curriculum which darts quickly from topic to topic. The danger in this fragmentary approach is that students may not have the chance to develop confidence, competence and understanding before they move on to something else, whereas teachers may vainly hope that, although little has been learned this time round, more will be achieved next time the topic surfaces.

Yet this issue cannot be divorced from that of motivation. Variety relieves boredom and aids motivation even if it might hinder learning. What student motivation makes possible in Japan; it might rule out here. For the most discouraging finding of all the international comparisons has been the powerful influence of factors deeply rooted in national, cultural and political education traditions. These cannot be changed overnight and, alas, are unlikely to be much affected by the introduction of regular testing and of a national curriculum.

Professor Geoffrey Howson is director of the Centre for Mathematics Education, University of Southampton.

Review



The art of looking

Shirley Hughes argues for greater variety in the images presented to children

Being an author/illustrator of children's books is solitary work on the whole, bringing its own pleasures, risks and fulfilment. It's only on the occasional visit to a school or library, talking to and drawing for the children themselves, that you are brought smack up against the enormous responsibility that the work involves. It may be that picture books offer the only drawn imagery that some children will really be able to get to grips with. Quite apart from learning to read, the pictures which they absorb at this stage are important. Young children have such good visual memories, far better than most adults. (Which of us doesn't carry down the years at least one picture we knew and loved in infancy?) The power to look, to absorb, and retain imagery is very strong in them. I suspect that it may fall off a little when the thrilling and prestigious skill of reading is achieved. It can even atrophy badly if not nurtured and encouraged. It's sad to come across so many children in secondary school, not to mention adults (even very highly educated ones) whose visual memory is poor and aesthetic responses pathetically under-confident.

Nearly all children are bombarded from the cradle with photographic imagery, their visual responses honed up to lightning speed in a way that is unique to this century. In one way we're the most visually over-stimulated society that ever existed. But film, though an excellent medium for teaching as well as entertainment if properly used, doesn't do much to develop our aesthetic response. For one thing, the pace at which we see the image is controlled not by ourselves but by the film director. Comparison between the nature of photography and that of drawing is too big a subject to discuss here, but I've encountered an alarming number of children of school age who hardly seem able to discern the essential differences. It's a delight, however, to walk into a primary school where the shared experience of picture books is going strong. Not only does it allow children, whatever their language background, a chance to express their reactions to a story, and thereby reinforce their own experience of life, but equally importantly to make a personal, leisurely exploration of drawing styles. Just one picture-book enthusiast on the staff of an infant school can mean that whole classes of children are, at a very early age, already able to recognise a variety of styles. They are easily at home with the distinctions between a Quentin Blake, an Aridzone, a Mitsumasa Anno or a John Burningham; the vibrant surface design of Eric Carle as compared with the fragile tonalities of a Beatrix Potter water colour; or the pleasures of a black-and-white line drawing in contrast with the bravura of a full-colour double-page spread. Young children seem to draw naturally and with complete confidence. They clearly take pleasure in producing symbols and in learning to use colour for its own sake. This doesn't mean that they are all going to become artists (heaven forbid) or that one should try to retard this wonderful directness of attack from developing to the next stage when getting to grips with drawing skills begins. Much of the work they do at primary school is stunning in its own right, especially to adult eyes. I suspect that for the children themselves it's the doing of it that counts. It's entirely right and proper, of course, that they should see their work honoured by being put up

on classroom walls, but I do admit to a certain unease in schools where they are surrounded by nothing but their own imagery. Nobody, surely, would attempt to train a child's musical ear by playing exclusively tapes of their own efforts? In the northern suburb where, in the Thirties, I grew up, many people hung their walls with framed reproductions of the Old Masters. Ours were of the Dutch School. (The sweet and unneringly goody-goody works of Margaret Tarrant were reserved for the children's bedrooms.) The intimacy of Pieter de Hooch's back courtyard and the tantalising glimpse through the narrow alley-way into the street beyond, and the Vermeer Interiors II (always it seems, from the left) by large lintern-like windows, communicated themselves to me so strongly as I stared at them at meal-times that they were as familiar to me as my own home. Nobody told me where these houses were. But I'll never forget the shock of pleasure when I first saw these paintings in the original. It was like finding a long-lost friend. Uninformed as I still was, they were the key to looking at other works.

At school we had other reproductions: the Pre-Raphaelites, such as Millais' "Ophelia", more Margaret Tarrant (it was difficult to get away from her in my childhood), and some stirring historical scenes by turn-of-the-century academicians. An odd choice by modern standards but full of clear narrative detail; sometimes lugubrious, alarming even, but more often, to my eyes, very beautiful and always provoking of curiosity. This tended to be dimmed somewhat under the onslaught of "Art Appreciation" classes in which dreary sepia photographs of the Parthenon and Great Paintings of the World were

circulated without the benefit of enthusiasm or illuminating comment.

The galleries in this country are full of pictures which tell a story. English and Scottish painting has always had strong literary connections. These are readily accessible to children, who can read them as they do a picture book. One of the mainstays of renaissance and pre-renaissance art, after all, was the need to tell the stories of the Bible to a largely unlettered populace. (It's a great mistake to assume that the unlettered are lacking in visual perception, far from it.) Breughel, Dürer, Masaccio, the Impressionists and many others can also be understood on a simple level as well as a profound one. Animals, both real and mythical, abound in all schools of painting. The wonderful clothes of 17th and 18th century portraiture appeal to the dressing-up instinct in us all. And you don't have to be an art connoisseur to respond to that unique record, a journey from Rembrandt in his self-portraits, of a journey from the swaggering confidence of youth to the most profound expression of old age. The full range of mature art cannot, of course, be fully grasped by children. But when it comes to gallery and museum visits, the ones who can recognise a selected handful of pictures with which they are already familiar in reproduction are streets ahead. Postcards, grouped together in a theme, can work wonders. But, as with stories, there has to be an adult around who's enjoying them too and prepared to back their own taste.

Young children who have been introduced to narrative through picture books quite naturally regard a story as a satisfying fusion of word and image. They produce their own stories in this way. It's only later, sadly, that the pictures get

separated out; often physically, when they are encouraged to do a drawing in a "box" at the bottom of their paper - if there's time, that is, after they've written the words. This dichotomy reinforced the higher up the educational ladder they get. Older children, who will tell you that they "can't draw" are nevertheless producing beautifully drawn information in their biology and geography notes under the impression, despite the pleasure and satisfaction gained, that it's not "proper art".

When education was first extended to every child and Christian religious teaching was a crucial part of the curriculum, much of the imagery offered to children was markedly sentimental, even guilt-inducing. But, as with the marvellous poetry of the Bible and the half-understood resonances of bymors, some of the Real Thing may have inadvertently got through. Now, faced by the challenge of educating children from many diverse religious backgrounds, and perhaps even more who have none at all, their need for a strong, sustaining humanist imagery has to be carefully considered.

Looking, like listening, is a skill. It has to be brought on in children. If looking at pictures is presented solely as an adjunct to learning to read, to be quickly discarded as babyish later on, they may lose touch with a life-long pleasure. More seriously, a void is created which will inevitably be filled by television. Much is said of the damage which excessive television viewing does to children's literacy if not accompanied by a lively experience of the real world, through chat, games, laughs and family exchanges as well as a ready access to books. It must follow that a powerful counterforce of alternative visual imagery must also be offered if we are not to become an aesthetically anaesthetised society. There is very little for many children, outside the enjoy-

'Nobody, surely, would attempt to train a child's musical ear by playing exclusively tapes of their own efforts'

ment of picture books, other than the highly finished but often slick imagery of advertisements (accompanied by the inevitable hard sell) which, however clever and accomplished, is surely not enough. Comics and strip-cartoons, with the exception of the triumphant vitality of the *Beano* style (long may it flourish), tend more and more towards the ultra-blond and the hideously distorted.

Offering children a more richly diverse range of imagery, in school and out, has nothing to do with highbrow aesthetics. It fulfils a central, unifying and far-reaching need.

Shirley Hughes has illustrated over 200 books since she began her career in the 1950s. Her latest is *Another Helping of Chips* (Bodley Head) and Lucy and Tom's 1.2.3. (Gollancz).

Uncomfortable words

Edward Blishen on Robert Chesshyre's analysis of modern Britain

of shame and dismay: here is something like a total picture.

The chapter on the schools will be full of melancholy echoes for anyone whose educational memory stretches back over the last 30 years or so. It was in 1963 that Newsom said we hadn't begun to tap the potential of ordinary children. Part of our present plight follows from our not having done it then, or since. "We don't believe," says Mr Chesshyre, "in the great mass of what we used to call working-class people having the talent or ability to do anything other than unskilled jobs or play football." He notes that perfectly sensible people fall prey to the propaganda pumped out about the comprehensives. Perhaps, he suggests wryly, British snobbery might have been assuaged had they been called high schools. He looks closely at a comprehensive in Rutland

(which wasn't sure it was wise in the present atmosphere to offer itself to be looked at by a journalist), and, aware that a school is difficult to assess, comes away admiringly. "With more resources," he believes, "greater public and political support, and a full range of children," the comprehensives "might do magnificently." He is, teachers, very kind.

In the context it may seem odd to accuse him of leaving out a black detail: but I wish he had taken a fiercer measure of the increase in those destructive forces with their origin outside the schools that in the last decade have so enormously enlarged the odds against the teacher. Things are made as bad as they could be for the best and luckiest of schools. But then he writes furiously about the promotion of the "national appetite for

Inconsequential distraction" and about the tabloid press, that frightful alternative classroom.

As the argument develops, Mr Chesshyre's despair about the condition of Britain is seen to be strengthened by his admiration for much in the condition of the United States. He thinks many of us are too easily and ignorantly anti-American. There, he says, is a society more open, not hobbled by our impotent class system, and almost beyond calculation more generously educated. As it happens, while I was reading the book I met the American adventurously working in Britain whom Mr Chesshyre quotes as thinking he might go home for the sake of his children's schooling. Well, he wouldn't do that, in fact, said my friend. In the end there was something about being in Britain that, he thought, added a valuable element to his children's experience. His own belief was that a mixture might be marvellous - half the British thing, half the American.

This is an uncomfortable book that should be read even by those of us who suppose we're uncomfortable enough, thank you.

Edward Blishen's latest volume of autobiography is *The Outside Contributor* (Hamish Hamilton £10.95).

Fathomless depths

Anthony Clare reviews an encyclopaedic study of the human mind

The Oxford Companion to the Mind. Edited by Richard L Gregory. Oxford University Press £25. It 19 866124 X. Mindwaves. Edited by Collin Blincoe and Susan Greenfield. Basil Blackwell £19.50. 0 631 14622 9.

One of the several hundred contributors to Richard Gregory's towering compendium invites his readers at one point to think of the mind and the body as two opponents engaged in a tug of war. It is, as these two books illustrate in their different ways, an apt analogy. It seems highly appropriate too that the latest Oxford compendium should open its one thousand and one entries with a terse little essay on the abacus. (Ancient attempts to muster calculation, and end with an even briefer yet no less informative account of Zen of Elea, the philosopher of paradox. Science and philosophy wrestle with what is the greatest calculation of all - the nature of human consciousness - may lose touch with a life-long pleasure. More seriously, a void is created which will inevitably be filled by television. Much is said of the damage which excessive television viewing does to children's literacy if not accompanied by a lively experience of the real world, through chat, games, laughs and family exchanges as well as a ready access to books. It must follow that a powerful counterforce of alternative visual imagery must also be offered if we are not to become an aesthetically anaesthetised society. There is very little for many children, outside the enjoy-

ment of picture books, other than the highly finished but often slick imagery of advertisements (accompanied by the inevitable hard sell) which, however clever and accomplished, is surely not enough. Comics and strip-cartoons, with the exception of the triumphant vitality of the *Beano* style (long may it flourish), tend more and more towards the ultra-blond and the hideously distorted.

Offering children a more richly diverse range of imagery, in school and out, has nothing to do with highbrow aesthetics. It fulfils a central, unifying and far-reaching need.

Gregory goes one further, however, and invites some contributors to write not merely on their own particular area of expertise but on their very own work. So there is a somewhat inflexible account of behaviourism by Burrhus Skinner, a translated essay on neuro-linguistics by Alexander Luria (who, sadly, died shortly afterwards), a substantial piece by Nnam Chomsky on his own theory of language and an extraordinary apology by R D Laing, in which the author throughout disconcertingly refers to himself in the third person, thereby conveying the im-

pression that it has actually been written by somebody else entirely! Inevitably, there are omissions and idiosyncrasies. There is, for example, an erudite if somewhat abbreviated review of the efficacy or rather lack of efficacy of psychotherapy yet no proper discussion of what psychotherapy actually is. Psychopharmacology seems somewhat abbreviated, molecular genetics a surprise exclusion, and the discussion of the concept of a delusion unexpectedly thin. Nowhere is Karl Jaspers mentioned, not even by Laing, yet the fact that to date he is the only first-class philosopher who was also a trained psychiatrist, whatever one feels about his contributions to psychopathology and phenomenology, might have warranted at least a paragraph in a book that can devote space to Alexander Bain, William Cresswell, and John William Dunne. Curious too that space is found for George Humphrey, whose main claim to fame is that he was the foundation professor of psychology at Oxford, yet there is nothing on the actual development of psychology and psychology as specialities within clinical medicine over the past two centuries nor on the major institutions in Britain, Europe, the US and elsewhere that have contributed to such a development.

As it is, the *Companion* is a large book, certainly heavier than the human brain it is trying to fathom, and the tug of war between mind and body rages throughout it. So many of the entries concern the luminous array of intellects - Aristotle, Plato, Locke, Newton, Bacon, Darwin, Wittgenstein, Ryle, Russell, Ayer (another contributor) - who over the centuries have struggled with the problem of mind. So many, too, concern those practitioners, the gifted and the charlatan, the intuitive and the rational, who battled to beside the enormous gulf between the theoretical knowledge of mental function and the clinical needs of the mentally ill. Here the roll call - Mesmer, Charcot, Wernicke, Kretschmer, Korsakoff, Pavlov, Bleuler, Adler, Jung, Janet, Freud, Watson, Piaget - is truly the history of psychiatry. How that history stands poised on the threshold of change is illustrated at various moments in this tantalizing collection, and in particular by those sections devoted to Sperry's work on the split-brain and its implications for our understanding of consciousness and personal identity.

The insights derived from the work on divided brains are the subject of more detailed consideration in *Mindwaves* and indeed many of the contri-

butors are common to both enterprises. It is, however, an irritatingly uneven book, its first section, ostensibly about the making of an individual, wandering from Gordon Claridge's personal psychological theory of schizophrenia by way of Michael Argyle on human non-verbal communication to Anthony Storr's forthright conclusions as to why psychoanalysis is not a science, and an essay by Brian Farrell on psychohistory which is a real gem. There are sections devoted to the question of animals and machines - do they have minds? - and sections of such complexity devoted to the mind-body question and the nature of mind as to test the reader's mental ability, and indeed patience, to the limit. The final conclusion would appear to be that of Donald MacKay who, having reviewed the stimulating information emanating from split-brain research, is forced to admit that how the activity of the self-supervisory system that we all seem to possess in our brains gives rise to our conscious experience remains "totally mysterious".

Anthony Clare is Professor of Psychological Medicine at St Bartholomew's Hospital Medical School.

Rhythm stick

Hard Lines 3. Chosen by Ian Dury. Tom Paulin and Fanny Dukes. Faber £2.95. 0 571 1464 5 7.

Like an ageing disc jockey anxious to keep up-to-date, Tom Paulin introduces his selection of poems and prose with the claim that it differs from other anthologies which require you not to think. The authors represent an alienated youth which inhabits, without illusions, hope or self-pity, a doomed Britain that is "Post-imperial, post-industrial... post-everything".

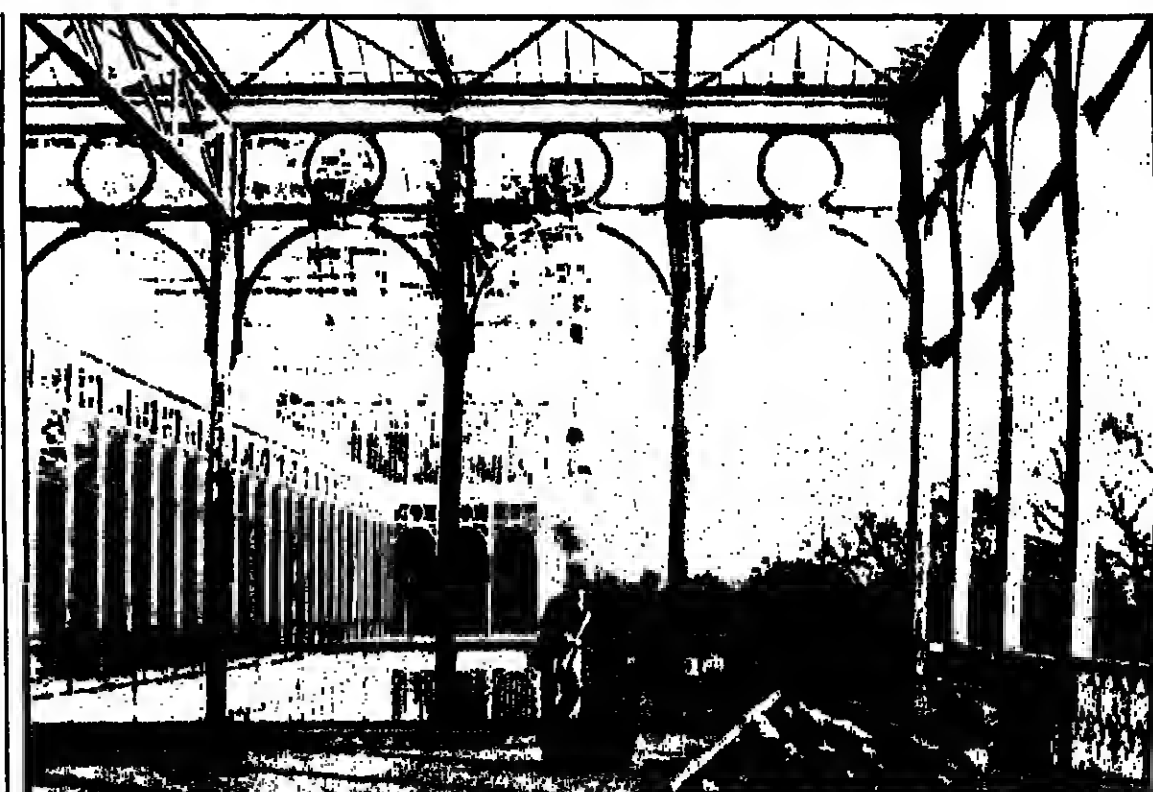
But *Hard Lines 3* isn't as glitzy as that makes it sound. It is less post-literary than *Hard Lines 2*, with fewer performance pieces. Indeed, the best poem is the elegant, allusive and highly literary "The Tree outside my window" by Claran O'Driscoll. (Surely not the Claran O'Driscoll with grey hair, who lectures in County Cork, the poet represented in Blackstaff Press's *Trio* series? Would he qualify for the "new generation" promised in the blurb? There are no notes on contributors to check.)

Other successes in the 77 pages are Robert Cochrane's "Miss McCaw", about a transvestite tolerated in a small community, and "Mad Uncle Tom" by one Barney Ruddle. Most of the better pieces are more - portray eccentrics. None of the writers seems weighed down by concern about metre and rhyme. Mike Short attempts ballad form in "Eh Dad, we've got a new teacher", but in general this book would be an unreliable guide to the mysteries of how to write verse or prose, clumped-up or otherwise.

The first poem, presumably favoured by the editors, is "Morning" by Caroline Yasunaga. It suggests strength and weaknesses in the book as a whole. "The gentleness of secretaries in the morning is something / to behold: When they are arriving, fluttering through the office and settling to their desks. They are cheery when I exchange greetings and stories. I have noticed the / gentleness of secretaries before the day sets in and / before they are no longer available to themselves."

While this is a stranger selection than *Hard Lines 2*, there is still an element of special pleading on behalf of the "young" contributors. In the absence of "young old literary technique, admirable attitudes and charm cannot take a writer very far.

Robert Johnson



The Crystal Palace being re-erected at Syon House, 1833, one of a series of pictures taken by Philip Henry Delamotte reproduced in *The Changing Metropolis: Earliest Photographs of London 1839-79* by Geri Stamp, now in paperback (Thames and Hudson £7.95).

A voice from the ranks

Argument of Kings. By Vernon Scannell. Russon Books £10.95. 0 8051 444 7

The motto of the Gordon Highlanders is "Stand Fast", but this is precisely what fine poet Vernon Scannell failed to do. He describes *Argument of Kings*, his extraordinarily moving account of wartime experience, as "a kind of confession": an attempt to exorcise a sense of shame, growing over the past four decades, at having concealed the fact that towards the end of the desert war in North Africa he had "deserted in a forward area" and been sentenced to three years' detention.

Scannell recreates the atmosphere of those years brilliantly: the "smell before the night air (of) the faintly sweet breath of corruption and fear... the odour of North Africa, of exile, war and mortality. The circumstances of his desertion, in the aftermath of a great economy and conveyed with a sense of not so much of unreality as a changed, much harder and sharper reality". His confessional, however, George Moore's *Esther Wa-*

German corpses. Scannell, in the person of John Bain, his 21-year-old self, simply walked away. He chooses to write of himself in the third person: a technique that sometimes has the unfortunate effect of distancing the reader from the poet's hand of the novelist occasionally, blunts the edge of the narrative. But there is nothing blunted in his account of incarceration in a military glasshouse in Egypt. It is a history of mindless degradation and persecution ("You're all towards. You're all yellow"), accompanied by such lunar occupations as scrubbing the baric square or (two to a man) from buckets of sand to another. (Talking was forbidden except on Communication Parade, when SUS's (Soldiers Under Sentence) were mustered in double ranks, a yard apart and ordered to converse with the man opposite. Unsurprisingly Scannell at first found it difficult to think of something to say.

Discovering that, after 56 days in SUS was entitled to an army. When it came, Scannell was in Arabia. Eventually, however, George Moore's *Esther Wa-*

ters turned up. Released on suspended sentence in order to take part in the invasion of Normandy ("That's what you're being let out for. To be killed"), Scannell rapidly finds himself in the thick of the French landings and the subsequent campaign. His account, quite unvarnished, is that rarely, a voice from the ranks. The military machine is observed, as it were, from the lower depths. The portraits of his comrades - their talk, their bearing - have the unmistakable stamp of authenticity. Whether the reader likes it or not, one has no doubt that this is how things were.

Badly wounded by gunshot in the course of an investigative patrol, Scannell ends his service in an army hospital in Cheshire. Still gamely fighting a rear-guard action with the Military Police. Among much else, his tale is one of human courage and endurance. It also reminds us that the Fascist thug was not the exclusive property of the enemy.

Charles Causley

Charles Causley is the author of many collections of poetry including *King's Children* (Midway £1.95).

Witch guide

Three Jacobean Witch Plays. Edited by Peter Corbett and Douglas Sedgwick. Manchester University Press £29.50.

The Revels Plays series aims to give a "broader perspective" to well-known works of literature. Here it provides the background to *Faustus* and *Macbeth* with three quite different plays on witchcraft.

The introduction distinguishes between the academic controversialists, and the pamphleteers and ballad-makers who reflected the witch-lore gathered at trials and executions. Not only the royal interest, but the acquisition of the Blackfriars theatre, with its advanced stage machinery, provoked plays about witchcraft. The three plays here vividly show the range of beliefs and practices, from the neoplatonism of *The Tragedy of Sophonisba* to

But when she finds a corpse New graved whose entrails yet not turn

To silly filth

to the folklore of *The Witch*:

There was a bat hung at my lips three times

As we came through the woods and drank her fill. Old Puckle saw,

and, more disturbing:

And fetch three ounces of the red-haired girl I killed last midnight.

The Witch of Edmonton evokes the small community with the established social order and the destitute figure at the bottom who serves as the scapegoat for the ills of the time.

These plays serve as a powerful reminder of a time when witchcraft was a real threat and the devil an actual figure who could be evoked.

Laura Garratt

Burton Raffel's translation of the 12th-century romance of Yvain, the Knight of the Lion by Chrétien de Troyes (Yale University Press £22.50 and £6.95), is a laudable attempt to make an important medieval text available to English readers. Its success will depend on their willingness to accept the blank verse he has chosen as a compromise between the medieval convention of rhyming couplets used by Chrétien and the prose form of modern narrative. But this version, should at least, reinforce Chrétien's claim to be the most powerful argument in favour of requiring a reading of Old French.

BOOKS

One man in his time

John Vanbrugh. By Kerry Downes. Sidgwick and Jackson £20. 0 283 094 975.

Contemplating the latest reverse in his chequered career, Sir John Vanbrugh wrote, "I am not one of those who drop their spirits on every Rebuff; if I had, I had been under the ground long ago." The "Rebuff" was rejection as Surveyor of the King's Works for the second time. At 55 with an eventful life behind him he could view this disappointment with equanimity.

Kerry Downes has already produced a weighty tome on Vanbrugh the architect. With his new biography he sets out to unite the two Vanbrughs - architect and playwright. In the process he debunks many of the myths, and fleshes out the life of one of the most charming and engaging characters of the 17th century.

A character emerges who was determined to succeed in whatever he attempted, but who could face defeat with dignity. A kind and courteous friend and colleague to those who won his respect, he could trade vituperative insults with great panache, in a quality he used with great effect in his epic battles with Sarah, Duchess of Marlborough.

He made a conventional start for a young man without great expectations of wealth: he became a soldier. At the age of 24 he was arrested and imprisoned for four years in France, on suspicion of being a spy. Involved in a complicated series of spy "swaps" he almost despaired of freedom. On release he returned to soldiering, and while on half pay his first play *The Relapse* was performed. *The Provoked Wife* was produced soon after. Both enjoyed great success, and with a number of adapted plays to his credit Vanbrugh was established as one of the leading playwrights of the Restoration stage.

Then, at the age of 35, with dramatic suddenness Vanbrugh became an architect. Even in an era when architects did not require a formal training, this switch caused comment. Swift wrote, "Van's genius without

thought or lecture is hugely turned to architecture." Huge was an apt word to describe his first commission, Castle Howard, built for his distant kinsman, the Earl of Carlisle. This job he won in the face of competition from the more experienced William Talman. Here entered Nicholas Hawksmoor whose skill as architect and draftsman were essential to the novice Vanbrugh. Attempts to unravel their relationship have provided decades of speculation for architectural historians. Only three years after this confident debut he laid the foundation stone for Blenheim Palace. Planned to be a nation's tribute to a hero, the building of it was bedevilled by misunderstandings and lack of money which culminated in a spectacular legal case. Here Vanbrugh started at a disadvantage, being the choice of the Duke of Marlborough but not of the Duchess, the vociferous Sarah. In the event, the architecture triumphed and Blenheim remains as one of the great monuments of the English Baroque end of the Whig ascendancy.

In his latter years Sir John married - to his friends' surprise - a much younger woman, designed more modestly-sized houses and embarked on writing what promised to be one of his most amusing plays, *A Journey to London*. He died at 62 in the fashion for the robust qualities of his writing and architecture gave way to a political taste.

In his earlier book Professor Downes constructed a *Who's Who* entry for John Vanbrugh listing his recreations as politics, saying in country houses, listening to music, writing letters. The pastimes of a clubbable wit, a man of fashion who drove a calash, the 17th-century equivalent of a sports car. In the current biography the author seeks to draw out the more serious side of his character making balance between "jest and earnest". He cites Vanbrugh's defence of his plays where he wrote "that the Business of plays is to recommend Virtue and discourage Vice. To show the Uncertainty of Human Greatness". By building the theatre in the Haymarket



he had hoped to unite the two competing companies and so secure the financial future of the theatre in London. In his architecture he was both a conservative, attempting to outflank the Duchess of Marlborough and preserve the old Woodstock mansion, while creating a fittingly grandiose setting for a national hero. He points out that Vanbrugh was also, contrary to the view of his critics, an eminently practical building incorporating the latest continental innovations in comfort. Vanbrugh was protective, almost to the point of tenderness, to the aged and ailing Christopher Wren through the turbulent last years of his

Surveyorship.

Kerry Downes has looked at all sides of Vanbrugh's versatile character with a scholar's thoroughness but also with an affection which is readily communicated to the reader. It is a shame that the publishers have chosen to illustrate the volume by cramming three photographs of immense Baroque buildings to a page, a practice which is generous neither to the architect nor to the reader. That civil apart, this is inspirational reading for those facing a mid-life career crisis.

Erica Davies

A dialogue in progress

1919-1965.

The editors' task is daunting in its demands for perceptive selection from the work of those purportedly qualified to evaluate plays, short stories, novels, literary criticism, and autobiography. This is not surprising that a swarm of British and American reviewers emerge, ranging from the forgotten St John Adcock, J T Grein, Gerald Gould and Lee Wilson Dodd to the more contemporary D H Lawrence, Katherine Mansfield, Rebecca West and W H Auden. With commendable awareness the editors have not overlooked several literary critics of salient merit, among them Edmund Wilson, V S Pritchett, Cyril Connolly and Frank Kermode. And

while the bag is as mixed as the quality of the criticism within it, the aggregation conduces to a surprisingly provocative reading that scholar and common reader alike will appreciate and enjoy.

In a colloquially written introduction the editors claim their selections as illustrative of "a dialogue in progress between Maugham and the literary intelligentsia on both sides of the Atlantic" and, certainly, their choices chart the ups and downs of their subject's literary relationship with his critics. While informative and stimulating, the preface content seems aggressively defensive of Maugham as presenting him as the victim of harsh, even bigoted - treatment. Very likely so - but given the quality of criticism through the ages this is a sad inevitability.

There is, too, a disturbing inconsistency apparent in the thumbnail sketches of contributors to the volume: some - J T Grein, Katherine Mansfield, and Theodore Dreiser for instance - receive brief biographical accounts, whereas the more obscure - R Ellis Roberts, Anne Armstrong and in particular the unfortunate Karl Graham Pfeiffer (cavalierly dismissed as "An American professor") - sink without trace. The editors need a consistent policy on biographical procedure. However, the volume is an intelligent revelation of Maugham's strengths and weaknesses and as a storehouse of critical reaction (both sound and capricious) of a middling figure of his time. As such it is a useful addition to an ever-burgeoning series.

John Bradley

Empson's eccentricity

Faustus and the Censor. By William Empson. Basil Blackwell £17.50. 0 631 15675 5. *Shakespeare's Scapism.* By Graham Bradshaw. Harvester £29.50. 0 7108 0604 3.

"It is the happiest death in all drama," says William Empson of the moment when Marlowe's Faustus calls out: "Ah, Mephistopheles!" and is fetched away by devils. Empson sees Mephistopheles not as an agent of Satan, but as a Middle Spirit according to Hermetic tradition, and Marlowe as knowingly providing a heretical Faustus, who escapes damnation to die with relief and love in this arms of his familiar. He insists that the plebeian Christian elements in the existing play were forced on it by a censor acting a politico-theological role at a time of great controversy over witchcraft and demonology.

Empson's case, however bizarre, at first sight, gains a certain plausibility from the undoubted problems of interpretation of the play.

preten *Doctor Faustus* offers. It's a play full of hitherto and contradictions, partly shared by the Faust-Books from which it derives, and it's certainly true that Faustus is shown as a lovable rogue-demigod and not just as an enemy of mankind. Indeed, Empson's claim that censorship has interfered with the text isn't as original as he seems to suggest. And even his love sweeping Copernican chat-chat-lator is a pub - are enlightened by his characteristic pre-emptive strikes on potential critics.

As part of Empson's unrelenting war against God, this posthumous book is highly readable, thanks in part to John Henry Jones's diligent editing. The Faust myth is tough enough to have accommodated interpretations as diverse as Mann's or Busoni's; Empson's penetrating eccentricity makes a notable addition.

Chris Jones's Shakespeare is yet more radically sceptical; a dramatist none of whose characters has a

privileged moral status and whose plays enact a jarring quarrel about the nature of Nature. Shakespeare is here his own deconstructionist, holding the mirror up to Nietzsche as a Jacobean revaluer of all values.

It's a highly intelligent book and impressively wide-ranging in its account of four of the major plays. But for all his insistence that Shakespeare's dramatic method of thinking through imagery and poetic form differs from discursive thought, Bradshaw himself topples too often into philosophical generalities with too many phrases like *Judgemental dilemmas*, *dialectical framing of alternatives* and *dynamic perspectivism*. Bradshaw has some acute words on Jonson's linguistic satire, his exposure of the "want of language" as the "note... of a sick mind". The glut of abstractions suggests that radical academics also have their occupational diseases.

Tom Deveson

lingo

On the slate

Just over half a century ago, I went to school with a small tin box containing a wet rag and slate pencils bought at the local shop. In a slot on my desk was a slate, thin, in a piece of slate in a wooden frame. It was on a slate squeakily, that we did our sums and our spelling. As they say, it never did me any harm.

Just over a whole century ago, in the United States of America, politicians apparently used such primitive methods, when they were drawing up lists of their likely supporters. Some would say that politicians have progressed only in that they now use ball-points and the backs of old envelopes. Anyway, someone wrote in 1877 about "the latest Cabinet slate... President Hayes's advisers". The term was defined precisely in 1888: "Some leading man... sketches out an allotment of places; and when this has been worked out fully, it results in a Slate, i.e. a complete draft list of candidates to be proposed for the various offices."

School slates are no longer with us. Village inn slates are not common - the kind used to record credit given to known customers - which produced phrases like "put it on the slate," "to wipe the slate clean" and "to start with a clean slate". Political slates are still around. For instance: "Rival Liberal groups are preparing slates of candidates... to determine the composition of the negotiating committee to hammer out a deal with the SDP." And with 39 candidates for the 21 seats on War on Want's council, there was some argument about an alleged pro-Galloway slate, some saying that Glynys Kinnock was on it, and a spokeswoman for her saying that she was not. When Mr Galloway eventually received a large number of votes, disappointed opponents complained that there had indeed been a "slate" on his behalf. "They would say that, wouldn't they?" retorted Mr Galloway.

So today's political slate is not the same as that defined in 1888. It is now a further circumscribed list of alleged supporters, designed to attract more, a device regarded as disreputable.

W S Brownlie

PAPER BACKS

I wonder if Arthur Hugh Clough and Richard Lovelace, whose Selected Poems are published in the Carcanet Fyfield series at £5.95 and £3.95 respectively, had need of such a reference as Vernon Scannell's *How to Enjoy Poetry* (Piatkus £4.95)? Both are established in the canon of English poetry and should of necessity have been read by the authors of the 4200 poems submitted to this year's TLS Cheltenham Festival of Literature Competition. *Paraphrase*, would such competitors have benefited from Scannell's book? Almost certainly.

His *How to Enjoy Novels* (Piatkus £4.95) is less engaging (some of the examples - particularly from Hardy - are less than apt) but it's still better than the general run of "how to" books.

An noddle in the Piatkus series is Charles Osborne's *How to Enjoy Opera* issued at the same time but dated 1983. Is this a publisher's error or is the book a re-cycled remainder? The best of the production is the illustrations.

Julian Barnes could benefit from Scannell. An excellent journalist, he is a journeyman novelist, a plodding plotter in *Saturn* at the *Suo* (Picador £3.50) and *ganche* in *Before She Met Me* (Picador £3.50).

Penelope Fitzgerald's *Innocence* (Fleming £3.50) reinstates imagination: a marvellous "Italian" novel heightened by some startling images, such as that in which the 10-year-old Salvatore meets the dying Gramsci. Remarkable.

Barry Cole

BOOKS IN CLASS



Computers and Computing, in the Longman series Science at Work: Technology, is a succinct introduction to the subject, with practical exercises on programming and simulations (£2.95).

A change of emphasis

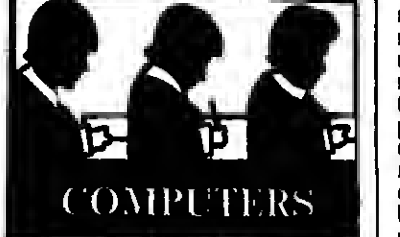
Computing without Programming. By Judith Citron. Chapman and Hall £9.50. (0412 281600) Mastering View, ViewSheet and ViewStore. By Clive Williamson. Signa Press £12.95. 1 85058 051 0

When computers were first introduced into the classroom, their use was often restricted to programs performing a small number of specific tasks, such as providing a means of testing and reinforcing pupils' knowledge of various facts. More recently, the emphasis has moved to the use of computers to encourage the development of problem-solving skills - this in turn leading to greater use of "content-free" software, such as word-processors, spreadsheets and databases, where the program is a tool to help the user to achieve their goal, rather than being a goal in itself. This change in emphasis has also been reflected in examination syllabuses, with most boards now accepting project work based on the use of packages rather than on the writing of a computer program - the GCSE (Mature) syllabus recently announced by LEAG is based on knowledge of the operation and application of a wide range of such packages. Finally, it is increasingly important that all teachers are made fully aware of the possible applications of such packages, both in their classroom teaching and for their preparation of record-keeping activities, particularly when using calculators. Mr Baker's view that the teaching of Information Technology should be performed through the medium of the existing curriculum.

After a short introduction, *Computing without Programming* is separated into three sections, each dealing with a particular type of package, with two examples of each type being described in detail. The packages covered are word processors (*Wordwise* and *Ultracalc*), databases (*Quest* and *Mastering View*), spreadsheets (*Quickcalc* and *Ultracalc*) and the book includes an order form for the purchase of any of the packages. The approach used is to identify a practical application for each package, such as the production of a book catalogue for use in a school library, enabling the various commands and facilities to be introduced in a meaningful way. The book covers each of the packages in detail, and includes a number of "screen-shots" from various stages of the project, so that the reader can confirm their successful progress. The approach of developing projects from their initial design stage enables the user to gain an overall view, and to develop their expertise in a practical context. One minor error noted in the computer dealing with the *Quest* package was a statement to the effect that "There will be no extra heading... to say which records were chosen" (p119) - users can produce such a heading by using the "Heading" command.

As well as describing the two applications for each type of package, each chapter contains three other sections. The first of these outlines the advantages of using the computer package. Instead of the manual approach - this is the "manual" approach - the "manual" approach would be to use a calculator, but would also be very useful as a starting point for a class discussion on the possible benefits of Information Technology. Following the two detailed projects, the reader is offered a number of suggestions for other uses of the package - these are generally of one or two sentences, and are intended to trigger further ideas on the part of the pupil or teacher. Finally, a point-by-point comparison is provided of the two particular examples of each package - this may also be of value if the reader is considering the purchase of one version of software.

Mastering View, ViewSheet and ViewStore deals specifically with these three packages, although brief references are made to other members of the "family" such as *ViewPlot* and *ViewIndex*. The *View* and *ViewSheet* packages are included to all of the Acorn Master series of computers,



although the accompanying documentation is fairly brief, and users are normally recommended to obtain more detailed information if they intend to make substantial use of the packages. An early chapter in the book deals with various aspects of equipment, such as types of printers and disc-drives - while this may be of some benefit to readers who are planning the purchase of a complete computer system, it may be a potential source of confusion to the first-time user. Similarly, the occasional program listing, to enable the reader to initialize their printer or to patch an older version of a package, would be better placed in an appendix.

Each of the packages is dealt with in depth, but the approach is rather technical at times, and may be confusing to readers who have little previous experience of computers in general and these packages in particular. A variety of examples is used to illustrate the various commands, but most are only referred to in passing and there is only one instance (when using *ViewStore*) where a project idea is developed in some detail. There are some omissions, such as when listing the mathematical functions available in *ViewSheet*, where the reader is referred to the Acorn manual for further information - this is, at best, inconvenient, and should not be necessary in a book of this type. Similarly, additional packages, such as *ViewIndex*, *ViewPlot* and *ViewStore* were only mentioned very briefly, and would have benefited from a more detailed explanation of their method of operation.

The final chapter of the book deals with the difficult topic of integration and transfer of information between various packages, thus avoiding the need to retype such information. Transfer from *ViewSheet* and *ViewStore* into *View* is carried out by means of the "SPOOL" command, which was clearly explained; users of *ViewStore* are provided with programs to transfer information, and examples are given of their use, although these would have benefited from more explanation of the operation of the questions posed by the programs and the reasons for the choice of responses.

Malcolm Neave

Micro theories

Computer Environments for Children - A Reflection on Theories of Learning and Education. By Cynthia Solomon. MIT Press £19.95. 0 262 1924 7

Cynthia Solomon's book is a stimulating attempt to assess a variety of approaches to the use of microcomputers in education, each founded on a different theory of learning. The conclusions are predictable, given her history of association with the Papert school. The book describes four major projects (the work of Suppes, Davis, Dwyer and Papert) all dating from the earliest days of educational computing in USA but each having a substantial message today.

Suppes and his co-workers have developed the use of the computer for a highly structured programme of drill and practice in arithmetic and reading. The work by Davis takes a broader view of mathematics and of the role of the teacher aiming to capture some of the strategies of good teachers in a machine, and Tom Dwyer's project

has explored the possibilities of interactive computing using Basic. Solomon attempts to give a fair hearing to each of these authors but it is clear that she feels that their approach to the use of microcomputers is inferior to that of Papert, whose philosophies and visions are explained in admirable detail.

The instigators of each of these research projects might claim that microcomputers can be valuable resources for learning, whether the model of learning envisaged is a drilling of facts or an open-ended exploration. However, Solomon points out that there are major problems in transferring these successes to the ordinary classroom where the level of resourcing and expertise is very different from that which prevails in experimental situations. Solomon has written a stimulating and scholarly book which provides a novel perspective on educational computing. However, parts of it are so evangelical as *Mindsizers*. The book would have been better for a more objective stance.

Heather Govier

What can be done?

Information Skills and Information Technology - Case Studies and Training Materials. By Jeremy Norman. Edited by Jenny Moosa. CET London £8.95. 0 86184 171 9

This booklet comprises case studies from eight schools involved in a project supported by the British Library and ILEA. Each case study is presented under the headings of: school information, aims, a description of the activity including curriculum context and teaching and learning styles, views expressed by teachers and children, and conclusion reached.

The case studies explore the use of teletext emulators, word processing, information handling and Prestel. Although the somewhat rigid structure gives a rather too structured approach, it does seem to have ensured that the emphasis is clearly placed on what many consider the important aspect of the use of computers in schools.

Notably, a focus on the educational issues concerning what was actually done with the computer rather than technical considerations of what the computer did.

The presentation of the book is significantly enhanced by the inclusion of curriculum web diagrams, photographs of groups at work, samples of worksheets and examples of children's work. At the end of the booklet is a short set of five worksheets that can be removed and freely photocopied for use in in-service training.

Although the style of presentation and a forbidding introduction and preface may put some readers off, this booklet would prove a very useful source both for teachers about to embark on the use of a computer in their teaching and for those having taken that step who wish to see an educational rationale for such use.

Jon Coupland

Computers in Education

Further reviews in this week's Extra, pages 41-64

Sixth Edition

France Today

Edited by JOHN FOWLER

This stimulating, clearly written introduction to contemporary France, which has become the standard survey of its kind, is now brought up to date in its sixth edition.

256 pages Paperback 0 416 92420 4 £5.95

Methuen's Twentieth Century French Texts

La Place

ANNIE ERNAUX Edited by P. M. WETHERILL

Reproduced here with a new introduction and notes, *La Place* will be an accessible and exciting addition to French studies courses.

160 pages Paperback 0 423 51620 5 £3.95

Le Rendez-vous

(originally entitled *Djinn*)

ALAIN ROBBE GRILLET Edited by DAVID WALKER

Le Rendez-vous is a blend of Chantieresque thriller, sci-fi adventure and tale of the paranormal, in which reality becomes fragmented and transformed into a kind of dream. This edition presents the original enigmatic text.

176 pages Paperback 0 423 51520 9 £3.95

Methuen's Twentieth Century German Texts

Kleiner Mann, was nun?

HANS FALLADA Edited by ROY REARDON

First published in 1950, *Kleiner Mann, was nun?* is one of the best-selling German novels ever. Much of what it has to say is particularly relevant today and the enduring success of the novel, whose title has become a catchphrase, seems assured.

496 pages Paperback 0 423 51680 9 £5.95

METHUEN

11 New Fetter Lane

London EC4P 3AE

CHILDREN'S LITERATURE

A Day of Rhymes. By Sarah Pooley. Bodley Head £5.95. 0 370 31166 7. *Arnold Lobel's Book of Mother Goose.* Walker Books £10.95. 0 7445 0416 3. *The Mother Goose Treasury.* By Raymond Briggs. Hamish Hamilton £9.95. 241 048X II. *The Walker Book of Read-Aloud Rhymes for the very young.* Selected by Jack Prelutsky. Illustrated by Marc Brown. Walker Books £9.95. 0 7445 0770 7. *A frog he would a-wooing go.* By William Stobbs. Oxford £2.95. 0 19 27944 0

To defeat the purpose of refreshing the adult reader's memory while providing a sure foundation of rhyme and rhythm (in the child). With familiar rhymes the trick is to order them attractively and to revitalize them with strong illustrations. Sarah Pooley does both these things in *A Day of Rhymes*. She has chosen exclusively children's old favourites from a wide range of sources. These are nursery rhymes such as "Hickory, dickory, dock, the mouse ran up the clock", "finger rhymes" ("Here is the church, / Here is the steeple") and simple songs. As far as possible the structure of the rhymes follows the title which makes for a pleasing logic, and some rhymes add distance to each one.

Arnold Lobel's *Book of Mother Goose* is, as its subtitle proclaims, a treasury of 306 nursery rhymes. As such it is a valuable basic collection and the illustrations are attractively done in a traditional style. Although it makes a nice picture book it is a pity way of coming by this simple treasure.

Julia Eccleshare

Treasure illustrated by Raymond Briggs is an altogether lighter affair. The illustrations are large and bright. The text is clearly set in lots of white space and the rhymes seem fresh and available. Newly reissued with a different cover, this still makes an outstanding collection of the simplest first rhymes.

The *Walker Book of Read-Aloud Rhymes* for the very young falls into the category of collections without enough familiar material. Perhaps because it originates in America it lacks a hard core of favourites and offers instead an interesting but somewhat remote collection of short rhymes. Despite Brown's title and homely illustrations make it a pleasing book to browse through. "A frog he would a-wooing go," making the most of the traditional text. Although it makes a nice picture book it is a pity way of coming by this simple treasure.

Julia Eccleshare

ARTS

Masquerade

Victoria Neumark meets one of the attractions at next week's Bristol Festival

"The first thing I'll do is get the children to wear the masks. They don't know which one they've got on, but from the way you talk to them they can guess. I've got a line of penguins and one pig. It's very interesting to see how the penguins group together - they look around and relate to each other - though the child might feel he's got no use. Then I'll get them to try out dialogue, something very minimal, like 'You're really ugly'. There's no need to say that, something about appearance." Roddy Maude-Roxby put down his penguin masks and in rapid succession transformed himself into his own death mask, a mouse-face, a half-face of an old man, a staring glass-eyed pink mask, a photograph and a wizened warden Mexican mask. For the most part the masks are simple, but the effects are startling.

It was masks at the Royal College of Art end-of-term shows, which got Roddy Maude-Roxby into the theatre in the first place. That was in the early Sixties. Nowadays he is well established as a playwright and is to be seen next spring in BBC's *Thornfield*, a film about the famous novel, but has never lost his fascination with masks. A veteran of the touring improvisation company, Theatre Machine, and a frequent guest artist at the Wells Arts Centre, Norfolk, he has teamed up with musician Stephen Warbeck from Shared Experience to run a week of mask workshops at the fourth Bristol Festival for Children. Describing himself as "very bossy", Roddy Maude-Roxby looks forward to the unpredictability of working with 21 children as an extension of the "chaos" he has always enjoyed in the theatre.

What he describes as "chaos" takes place within strict boundaries. Twenty children from the upper and lower age groups of Whitefield Fishponds Secondary School will work in groups of five: wearing masks, making them from different materials, devising a performance with music, and showing their work to an invited audience, whom with luck they will be able to involve as well. "It's rather that the audience come in on the process than watch a performance. For example, the masks might be an orchestra, the others come as dancers. 'It's allowing people to lose their preconceived ideas by seeing them: and mostly the less you do the more it works'."

The Bristol Festival for Children will run from 19-24 October at schools, galleries, and arts centres in Bath and Bristol. Activities will range from masks to poetry workshops, a musical guano of snakes and ladders, a contemporary dance course and an inclusive week-end course on music theatre with the National Youth Music Theatre. There will also be marionette performances, jazz concerts, plays and mixed-media shows with puppets. Events are available for all ages from 5 to 16, and the whole Festival will culminate in a Fun Day in the Victoria Rooms, Clifton, on October 24 when Postman Pat, fire-eaters and jugglers will mingle with magic shows and clowns. More information from 0272 276483.

Cocktail secrets

Exile in the Forest: Tara Arts at the Place Theatre

The theme of migration and the powerful image of "the seductive and vindictive forest" as a metaphor for modern day Britain have set the team of Tara Arts and CULT (a contemporary theatre company from Southern India) on a rich dramatic journey exploring the experience of Asians as migrants in Britain.

Drawing from the Indian epic *The Mahabharata*, a princely family is forced to enter the forest - "the new land" - and the drama follows attempts to come to terms with an alien environment. Taking the audience into a magical world of almost slow-motion predilection where stillness and silence speak as expressively as action and sound, Tara unlocks the secrets of the forest. The company's stylized cocktail of movement, mime, music and verse fuse dynamically with CULT's expertise in martial arts. Bold Brechtian commentary fronts scenes of comedy, conflict and adventure as weird creatures of the forest with striking masks confront the migrants. The company has evolved a unique theatrical experience: simple and honest, yet explosive and challenging.



The past is inextricably linked with the present and future and the Asian experience lives, in a real and immediate sense, in all three times.

Kate Elliott

Exile in the Forest is at Bradford's Alhambra Studio until October 17, and at the Leicester Haymarket Studio from October 27 - November 7.

Doublet

A Comedy of Errors. Adapted from Shakespeare. Warrington Youth Theatre

The audience was seated in the middle of Padgate High School Studio and there were shallow stages on either side with rows of doors and windows. To the right were the Dromio and Aetipholus twins and their bodiless counterparts in Elizabethan gear and to the left exactly the same characters all in slightly stylized modern garb. In the middle was a hanamachi-type platform for the characters to rush across during the climactic moments of the ensuing confusion.

Language was divided on the same terms in a doubling device which was originally formulated to give all 20

players more or less equal roles. The bawdy Italianate humour of Shakespeare's early play was transformed by a raucous romp with music composed by youth theatre members and musical director Lyn Rogers. Despite some omissions, the machinations of Shakespeare's plot had been assimilated by the young performers and were, for the most part, clearly transmitted to the audience.

It was a bold experiment by the youth theatre's director, teacher Steve Titchmarsh. There was a professional touch to the pace and timing. The comic moments, whether devised or from Shakespeare, were successful, and the musical numbers played with joyful confidence. There was no such competence in the spoken performances, which I found disappointingly narrow compared with the general technical excellence. And the audience was too busy laughing to worry about a pain in the neck.

Judy Meewezen

Bar snacks

Savage in Limbo. Cite Theatre. Notting Hill until November 9

The Savage in question in John Patrick Shanley's blacker-than-black comedy is Denise, who rushes into the depressing-looking Scales Bar in the East-Brontë looking manic. She strikes up a conversation with her old classmate Linda who, crying, confesses that she also has a "situation". Her boyfriend Tony wants to see other women. Ugly woman. Pretty soon, Linda confesses (and to her it is a confession) that at 32 she is still a virgin. It's a symptom of the limbo into which she has cast herself. All her life she has confused inertia with choice. While others have been "going live", she says, "there I was, still in the wrapper".

While Shanley's characters are the sort you'd hack away from grinning and looking at your watch if you met them in the flesh, the language they speak is very funny. Tony, Linda's boyfriend, arrives on the scene, announcing his intention to change "majority", after a sexual encounter with a woman whose idea of foreplay was a lecture about the Soviet Union. April, the real emotional basket-case in the piece, is remembered by the classmates as another contemporary from school days, and it looks for a moment as if Tony will fall for her distinct lack of charm, as she describes her failure to become a nun.

Inevitably, the play devolves into a series of set monologues about the characters' lives and loves. Or rather, the lack of them. You end up alternately horrified by their self-absorption and sympathetic to their plight. Scales Bar with the juke-box blares is, one imagines, the most pleasant place to be on a Monday night. The

décor - a tatty homage on Douanier Rousseau, is even more depressing. The animal centrepiece stands for the animal that a human inside Denise. Like her animal it can't go anywhere. The lugubrious barman, who also acts as umpire in the crossfire which develops between Linda and Denise, waters the dead plants with the sense of purpose born of a man determined to follow the rules.

Shanley's themes - isolation, identity crisis, distance from genuine feeling - are not new, neither is the way he deals with them. But Robert Hickson's smart production and the muffled quality of the acting, all in impeccable, creates a disturbing mix of comedy and heightened realism. The overall effect is of Damon Runyon on hard drugs, an episode of *Rhoda* in which the characters are really depressed.

Nick Baker

Fabulous beasts

The Cheltenham Festival of Literature, which runs until October 18, is giving practical support to the appeal to keep the Ope collection of children's books in Britain. A selection has been on display in the main book hall throughout the 14 days of the festival, and next Sunday, Tony Robinson, Jill Balcon and Robert Edmond will present a reading from the collection selected by Iona Ope.

That reading will be part of the Festival of Children's Literature, which has been running in conjunction with the main events since Saturday. Mike Darling, children's librarian for East Gloucestershire, who has been responsible for devising a book programme for pre-school and primary age children for the past seven years, based this year's festival on two separate themes. Last weekend was given over to monsters and fabulous beasts, partly in celebration of Maurice Sendak's *Where the Wild Things Are*, and on October 17 and 18 he is concentrating on man and machines. Then Val Biro's *Gumdrop* and *Cliffy Cluffy* will be on display, providing a focus for storytelling, poetry and music-making.

Throughout this week, Mr Darling has arranged a series of events for primary schools, some of which are separately planned for infants and juniors. They are based on storytelling sessions, poetry readings and puppetry presentations in which the children are encouraged to take part. Meanwhile secondary school pupils are being catered for in the first Cheltenham Festival of Youth which is being sponsored this year by the W. Smith arts programme. Throughout this week a series of drama workshops, which form part of the autumn term's work, are being held in the Everyman Theatre. The students are also welcome to join in the main programme events, and to meet the writer-actor Jack Kalf who has been available to talk to would-be authors throughout the festival.

Shirley Toulson

For more details and booking ring 0242 523650.

Divorce

The Green-Eyed Monster of Ecovoid. Unicorn Theatre for Children until November 8. Matinees.

Billed as a "funny and exciting musical play for 7-11s", *The Green-Eyed Monster of Ecovoid* is, in fact, strong meat. The combination of powerful emotion and sophisticated and potentially upsetting for the younger end of the recommended age-range. Even for slightly older children it should be treated with caution.

The plot concerns 10-year-old Jane, who still idealises and lives with her young mother, who, with the help of her boyfriend Martin, with the help of Top Dog, an old cat, is metamorphosed by Jane's jealous im-



Being strapped into a straitjacket and 'left to the tender medical care of an asylum doctor was the Victorians' cure for so-called "mad" women who dared question the conventions of their day. That straitjacket image powerfully characterized the scene of Gwent Theatre's *Constance* and *Louise*, a play which traces the role of women in society from Victorian times to today.

Constance (played by Truly King) was the classic well-to-do young Victorian woman, forced to live according to her father's unreasonable strict laws. Unable to endure the situation she left home, became destitute and ended up working the streets. Eventually rescued by her father, she was subsequently hidden away in an asylum to cure her "insane rebelliousness". Louise (Linda Owen-Jones) - the 20th-century student nurse about to marry her boyfriend - did not undergo such a harrowing experience. But her life too was changed by the arbitrary code of duty and obligation.

Although women's conditions have improved during the 100 years of social change since Constance's time, Gwent Theatre makes it clear that deviating from the stereotype image is still difficult for women today. Devised for fifth and sixth formers, this powerful play is being performed daily until the end of the month at Aberavenny Drama Centre.

Iola Smith

agination into her longed-for father-figure friend, she becomes Enal the Avenger. Jane tries to scare off Martin, whom she sees as planning to steal her mother from her. All is eventually resolved with the help of a rather scary child psychologist and Jane learns to let go of dad and to tolerate Martin.

Children having to face parental separation may gain some strength from all this, as long as a reliable, loving adult acts as mediator. Children for whom this is a previous worry would not fall to be worried by the idea that Jane feels she is likely to lose mother as well as father. This is not to say that children's presentation is all important, but the words as Jane reads back-learn to cope with Jane must go to. Unfortunately, little is made of this. We could have done with more youngsters, less monstrous reality. It would be nice to be able to

Compose yourself

Aspiring songwriters, aged between eight and sixteen, should be pleased to know that the rock recording artist Smiley Culture is looking for a song to be recorded on his new Eppanin label.

The competition, sponsored by the Commonwealth Institute, is to find a song which, in an entertaining way, spreads the message of the Commonwealth and its aims of achieving international understanding and racial harmony. The winning song will be recorded by Smiley and released to coincide with Commonwealth Day, 1988 (March 14).

Smiley, creator and performer of hits such as "Cockney Translation", "Police Officer" and "School Time Chronicle" hopes to help promote young talent that might not otherwise have access to an impenetrable record industry. The competition will be judged by a star team including Timmy Mallett and Michaela Strachan (TV's *AM's Wild About Chai*), Magenta Divine (Channel 4's *Network 7*), Roger Lewis, head of Radio One's music department, Doreen Davies, head of Kailin One programmes, and Smiley Culture.

The winner will help produce the record and be legally entitled to all royalties from airplay and record sales. He or she will win a Sony Walkman and meet the judges at the launch of the record. Eight runners-up receive a Sony Walkman and a "This is WOMAD" LP record (featuring musical styles from all over the world). Only one entry per child may be submitted. Songs can be sent in on paper or cassette, but there is no need to indicate music. Songs should be clearly written and each entry must contain the writer's name, address, phone number and age. Entries to, and requests for further information from: Public Relations Office, Commonwealth Institute, Kensington High St., London W8 6NQ. Tel: 01-603 4535. Closing date: January 31, 1988.

Uma Ram Nath

Nicholas Clapton, winner of the 1987 English Song Award, will give a recital of songs with flute and piano accompaniment at Wigmore Hall on Tuesday November 17 at 7.30pm.

congratulate the Unicorn on facing up to a tough subject, especially as this is (as usual) a lively production (by Martin Houghton) with some good performances (especially by Tracie Gillman as Jane and Lewis Houghton as her mother), but it is irresponsible to open a Pandora's box of fears and anxieties in the name of entertainment.

Heather Neill

The Volkswee Festival for Schools runs in Milton Keynes from 2-8 November. The Royal Ballet introduces their art (2nd) and the London Brass Virtuosi their (3rd) at the Woughton Centre, which also houses a Road Safety play for 3-7s from Lambeth Children's Theatre company (6th). Terra Nova introduces contemporary music at Stantonbury Campus while The Stables, Wavendon has a harp and flute event (5th). Box Office City's offices, 1 Saxon Gate East, MK9 3EL.

RESOURCES

Original giants

Playgrounds are transformed as the Free Form Arts Trust steps in. Gerard Benson reports

A visitor to Princess Mary Junior & Infants in London's Division Four would perhaps be amazed to see, in the playground of this London County Council vintage school, a brightly-painted group of sculptured animals. Contained within a huge basket, lion, seal, pelican, zebra, crocodile, dolphin and turtle peacefully co-exist, observed, it seems, by a girl-figure - an Eve, who sits a little apart. This is the *Earth Basket* and is part of a three-dimensional project on Creation Myths to be found in Princess Mary's playground. The sculpture is visually appealing but not sacrosanct. Children play on it: ride the lion, squirm under the arch of the dolphin, or sit caressing the little girl, watching, like her, the group of newly-created animals. Elsewhere in the playground, sculptured pillars of life-sized children apparently climb the walls. A giant struggles to emerge from a small flight of stairs. There are several door-sized mosaics and a climbing frame in the guise of a formalised snake.

All are part of a scheme mounted by the Free Form Arts Trust, whereby an artist (in this case Ann Dunbar-Marks) collaborates with the staff and children of a school to produce large-scale works of art. These pieces arise out of the school's work and are relatively permanent. Ideally, all the children participate in them. In most cases the works have "play-potential" as well as educational usefulness, and they always act as a focus of attention and interest.

Several Hackney schools have enjoyed collaboration with Free Form. There is the Wall at William Patten, tiled with work by the pupils on the subject of food, and also containing the word "Hello" in many languages. This transforms an austere Victorian frontage, literally greeting the children as they go into school. It is also enjoyed by passers-by.

At Thomas Fairchild, a derelict site has been converted into an "Alice" garden, featuring an imaginative seating arrangement where the chairs are part of both a caterpillar and a tea-set. There are also areas where plants can be grown and studied, some music-playing cards, a grinning Cheshire cat and goodness knows what besides. It is all to scale for a small child and makes a perfect play and learning area. The collaborative system was the same and the artist was Kathy McCarthy.

There are schemes, too, at London Fields Junior School (where a garden is being built on a previously unused roof playground, dominated by *The Iron Man*, an aluminium weather station in the form of a giant); and at Bergham Infants, where a complex, nested arch and ponded garden is in construction on a grassy site (artists Ken Glezner and Paul Wright).

The Free Form Trust (a registered charity) has a number of other operations outside London which have involved school children. Some (like Cuntstock Primary School in Dorset) have taken place within schools. Others have involved schools in work on general community projects. At Dilton Fields, Cambridge, for instance, where the plot of land near a

housing estate was revived, school children were actively involved. At North Shields fish quay, school pupils were responsible for the huge fish motifs which mark the site.

The intention is that the projects should be both visually exciting and educationally valuable. The process is slow, careful, laborious even, beginning with consultation, which happens at various levels. There are meetings with staff at the school and with the pupils. There are also complex co-ordinations with County Hall. Permissions have to be obtained. The architects' department must be fully involved, for these are not merely cosmetic additions to schoolyards. Structural alteration of a fundamental nature is involved.

To try and gauge the impact the project had, I spoke to staff and children at Princess Mary School. Although the result is excellent, it seemed to me that it could not have been achieved without some disruption. I could imagine not only physical difficulties but emotional ones. After all, even with caring and sensitive consultation, not everybody's ideas can be taken up.

Speaking to "Mac" MacBoyes, the junior head, I got reactions of not unmixed approval. He was proud of the work but felt that there were several aspects in which the venture might have been better arranged. In his view there were mismatches of expectation. Free Form and the school did not realize until quite late that they had somewhat different objectives. Too much of the work, he felt, hap-

pened when the children were not there. In brief space I have over-emphasized the negative in his response. But the points are valid. Nevertheless, he felt that over-all the scheme had been worthwhile, although, at £10,000 to £14,000 per year, expensive. Though it is?

He felt also that the Free Form team had learnt a lot on the job and that the infant school, whose work took place during the second year, reaped the benefit of this learning.

This impression was confirmed in conversation with Sue Barry, a teacher in the infant school, whose enthusiasm was unqualified. She described the process. When the theme had been established, all the children were asked to provide ideas. (It is part of the intention that the participants should learn how a process happens, from its inception as an idea, through the planning and experimental stages, through the making, and right up to the finishing touches: the last lick of paint.) There was work on animals (with visits to the zoo for animal study) and much planning work. Designs were presented and some chosen. Models and drawings were made. Stage by stage the ideas became actual, turned into tangible objects: life masks, mosaics, holes in the ground, armatures, lumps of clay, concrete, paint, nuts and bolts.

The *Earth Basket* obviously must be a sound construction - safe for children to play on. The ground has to be prepared. Literally. One day the area of playground is fenced off and a team of five women arrive to do the



Elephants at Dilton Fields School

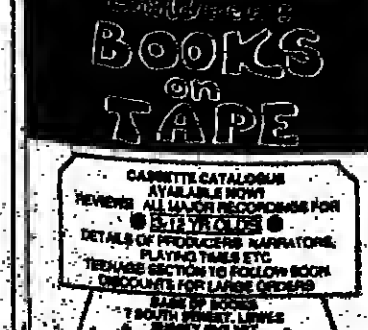


Composite beast at Thomas Fairchild School

Functions

Religion in Art. Three packs, each with eight colour reproductions and a set of teachers' notes, £4.40 per set + VAT. Pictorial Charts Educational Trust, 27 Kitchin Road, London W13.

Religious art has its own functions and conventions. Christian art teaches the religious story and myth, and inspires religious awe and devotion, as in the icon and altarpiece here. Much religious art represents divinity, from



the Balinese mask to the Celtic horned god, and the Hindu painting of Vishnu. Where the god cannot be represented, as in Islam, its nature is suggested, as in the Turkish prayer mat with its geometric pattern symbolizing order. Other religious art is magical, very much more is ritual; the Egyptian Book of the Dead is a passport to the next world.

So in religious studies the posters could be used to explore the function of religion in different cultures, and think about the importance in each of the ritual, social, doctrinal and spiritual dimensions of religion. The face and body painting of sacred designs in the initiation ceremony of Australian aborigines, the making of a Navaho sand painting, the Peruvian ceremonial knife, and the Tao shrine, are all equally religious.

The posters could be used for art, too. They suggest the variety of artistic expression, and the artistic richness of non-Western cultures. The bronze head of a Yoruba king combines head and model with simple and beautiful economy. Shiva has a fluidity the Hindu dancing which belies its mass. The Japanese rock garden moves between line and form, and between two and three dimensions with stunning abstract ambiguity.

Jessica Saraga

Ready-made

Standard French. Reading and writing tests, £2.95. Listening and speaking tests, £1.25. Teacher's pack, £20.00 + VAT. By A C Gilgley. Blackie & Son Ltd, Bishopbriggs, Glasgow G64 2NZ.

Here is a series of ready-made test materials designed for use with pupils taking the Scottish Standard Grade examination (hence the title). They cover the four skills of listening, speaking, reading and writing, and according to the author, "can probably be used by pupils sitting GCSE exams". Each skill and each test is divided up into three levels, so they can be used with all levels of ability as required (except the writing, which is "for the better candidate only").

The reading tests are based on a good variety of authentic materials - posters, photographs, "tourist" brochures, magazine/newspaper articles, signs, handwritten notes, forms, etc. The questions have been designed to elicit answers in English, but some relevant answers in French are given.

Colin Russell

notes

LAUNCH PAD. Half the Launch Pad exhibition at the Science Museum in London will be closed until Tuesday November 3. This is to enable extensive building work to be carried out in the gallery.

GIVE UP FOR GOOD. Give Up For Good is a do-it-yourself guide to stopping smoking produced by the National Extension College. It provides action plans, health aids and checklists for the user as well as advice on how to enlist support from friends and family; begin a countdown to stopping; analysing why you smoke; and getting sponsorship.

Copies of the book, price £5.95, are available from NEC, 18 Brooklands Ave, Cambridge CB2 2HN.

Online

"LEARNING WITH Lasers" is the title of an exciting-looking seminar to be held at Central Library, Sutton, Surrey on Friday November 27. Beginning with a keynote from Ray Collins of Sutton TVE1, participants can hear the latest from Phillips, from the Library Association (LEA on CD-ROM), Lingaphone, Pergamon Compact Solution (the International Encyclopedia of Education on CD-ROM) and Whitakers (British Books in Print).

Other sessions focus on interactive video, with Phyllis Gova on *Domesday* and a lunchtime demonstration of the BBC *Beowulf*, Brian Hill of Brighton Poly on IV language teaching and Tact Ltd showing low-cost TV (BBC micro and VCR). The seminar has good value, though at £40 plus VAT, teachers will want to support to attend. Details are from the Central Library, St Nicholas Way, Sutton, SM1 1EA.



Train of thought

Tony Scott is liberated by his laptop machine

I am writing this article on the train. That is not unusual - many people try to turn train journeys into useful time in various ways, like reading a novel, catching up on sleep, or writing a novel on the meeting just had. The difference here is that I am writing direct into a word processor, and revising the article as I go along, using a "laptop" or "kneetop" computer.

I am using a Thora-EMI Liberator, which was designed to meet a specification for briefcase computers produced by the Civil Service. They found that, although there were several computers in this market, none was really suitable for the job in hand. Some of the laptop computers which were produced were quite powerful, and more sophisticated models have joined the market since, but machines like the Liberator are often more suitable for the "laptop" applications which obtain in an educational administration context.

Liberators are also used by HMI and some LEAs. Croydon's school inspectors have each had one for about a year now. They use them day-to-day to make notes while out in the field, to draft reports, and produce other regular documents for transfer to RM Nimbus and AES Wordplex machines for final revision. It also means that even when they are all in the office, there is a machine on everybody's desk.

Easy access to a word processor is quite important in your work-group is oriented to document production, especially when no report is the sole authorship of one inspector but rather the focus of dialogues between inspectors, and inspectorate and the school. There is much editing and re-editing to be done at the draft stage. That point about transferring documents to other machines highlights the

need for taking a very careful specification of the role the laptop machine will have, and why fairly unsophisticated machines like the Liberator are sometimes preferable to those offering more, but more complex, facilities.

The Liberator is about 8 x 10 inches and the thickness of a medium-length paperback (it is certainly thinner, and into an epic TV set) blockbuster in size. It has a 16-line screen and a QWERTY membrane keyboard with thin plastic keys. It would probably drive a touch-typist mad, but it is pretty accurate and the keys are large enough to be hit by a reasonably fast two-finger typist on a wobbly train. You need to develop quite a light touch, quite the reverse of the hacker's usual thump.

Time to change trains.

I closed the lid, hauled myself over to the other train, sat down, opened the lid, and carried on precisely where I left off. Liberators, like most laptops, have CMOS battery-backed memory (the kind that misbehaves if you overcharge the battery), and opening the lid presents you with the word processor activated and the cursor at the same place in your document.

The Liberator does not have a built-in disk drive, printer, or TV monitor, or even any other programs apart from a word processor. Laptop designers have to reach a careful compromise, otherwise they end up producing "luggable" suitcase machines, which cannot be used "on the move". Even the resident word processor on the Liberator is pretty limited - though it provides cut and paste facilities, it doesn't attempt to be Wordstar.

You can plug ROM packs into the side if you need a spreadsheet or a database, and CMOS RAM-packs in the back, if you want to do a bulk data

transfer in the field and not lug the portable disk drive around. The ROM pack that is really useful, and should have been provided internally, is the communications program. This lets you use an external modem to connect an electronic mail service such as TTNS or BT Gold and transfer documents up and down line. It also has the only I've encountered with a Liberator (apart from the battery-overcharge problem). Trying to download a large file to a full machine zaps your communications file, before it tells you the machine is full; most people will mostly be uploading, anyway.

You also get sockets in the back which enable you to copy files to a printer or on to another Liberator. That careful specification, again: Civil Servants, HMI, i.e. inspectors, often need to revise each other's drafts, so direct copying is very useful. So we have a briefcase (or suitcase) sized word processor, which doesn't pretend to be very much more and needs external help for communications, databases, and spreadsheets. It is very easy to use, and to connect up in other devices. However, at around £650, it is pretty expensive.

So what other machines does the market offer? Are any of these a "better deal" for the education market? Do any suit a single-machine user? (The Liberator will transfer stuff straight to my Nimbus; if I didn't have the Nimbus, it would be far too limited). The Japanese have a fair lot of this market, and there are American and French machines too. Representative manufacturers are Epson, Tandy and Coupl.

Tandy have been in the market longest, with Tandy 100 and 200 portables. The Epson PX series provides CP-M or MS-DOS compatibility; Coupl offer a complete "briefcase" package, with all the software needed by a small businessman. Each of these

machines provides a certain amount of upward compatibility, certainly with other business micros from the same manufacturer, and, with proper keyboards, etc, some attempt to be usable by the secretary as well as the manager.

Perhaps because manufacturers have this image of the purchaser being a manager with budget control, all of these are in the £800-£1,000 range and, to their quest for compatibility with the business micro, perhaps offer more services than we require in education, at too high a price.

There is, however, one machine at least which might be considered as a realistic next step from the Liberator, offering just those few extra facilities that education users might really need, and at a more appropriate price, and that is Sir Clive Sinclair's Z88.

This is a laptop computer for about £250, offering word processing, spreadsheet, database and communications facilities. It, and it is a big if, Sinclair, can avoid the shifting specification syndrome which bedeviled his earlier products and which their poor reliability, the Z88 could be useful to heads and inspectors as a basic document-creation machine, with database and spreadsheet facilities sufficient for testing out ideas on capitation, funding formulas and the like.

Of course, the real test of a laptop computer is its communications capabilities, which is why I am attempting to send this article to the TES by electronic mail. Now where did I put that mailbox number...? [Copy received. Thanks, Ed]

The Liberator costs £650 + VAT Thora-EMI Domtech Ltd, Spur Rd, North Feltham Trading Estate, Feltham, Middx TW14 0TD.

Rhaglenni dwyieithog

Iola Smith on the work of the Microelectronics Education Unit Cymru

Encouraging teachers in Wales to use computers across the curriculum with all age and ability groups is the objective of the Microelectronics Education Unit Cymru. Funded to the tune of £100,000 a year by the Welsh Office and all eight LEAs, it is administered by the Welsh Joint Education Committee and was created in April 1986 as a successor to the Microelectronics Education Programme.

"We run courses, conferences, newsletters and exhibitions for teachers as well as providing a comprehensive information service," explains MEUC's director, David Rees. "But our main function is the development of new software which is relevant to the needs of five to 19-year-olds in Wales."

As a result, bilingual packages have

been created, covering topics as diverse as satellite technology and heart disease and specific Welsh-language programs, devised to counter the acute shortage of Welsh medium software.

Until the mid-1980s such educational software was mainly produced by enthusiastic amateurs working in isolation, but the pioneering projects of the Microelectronics Education Programme, coupled with the Welsh Office's willingness to fund computing initiatives via the Welsh Language Grant, has improved the situation.

Some English programs have been translated and, despite the expense of original Welsh medium material, is being created.

Cost wasn't the only problem facing programmers in the early days. Appropriate terms had to be invented

for computer sections (they are now embodied in a specialist dictionary compiled by the WJEC in 1986) and the language's mutations had to be accommodated.

Those problems are now largely overcome, and MEUC has even succeeded in developing a program for teaching Welsh grammar and vocabulary to infants. And for primary pupils interested in wildlife, a database for recording birds, wild flowers and the weather is available.

"One of the more unusual bilingual primary programs is *Lifbeol*, an ancient air-sea rescue," says David Rees. "Pupils are invited to coordinate the rescue, using mapping, geometrical and decision-making skills. It is expected that the program will be the starting point for a multimedia studies

class project."

The Principality's history is also featured in the form of programs and books on 13th-century castles and the medieval lifestyle. Secondary school material looks to the future, focusing on information programs about satellites and a CD package on aeroplanes design.

At this level health education and biology are also being introduced by computer. The resulting bilingual interactive heart health project enables pupils to investigate the effect of exercise on the heart and gauge their own fitness level. Already tried out in Cardiff's schools, this program - like all the other MEUC software - is now available Principality-wide. Interest has also been shown by Scottish schools in the health education program.

Staying on your bike

David Peck on a new careers series

Falling on your Feet
"Standing on Your Own Two Feet", "Working in Hair and Beauty", "Working in Electronics", "Working in Agriculture", "Working in Sport and Recreation"

By Phil Wainman of Utopia Video Ltd with support from MSC

£49.95 + VAT for all five from Pergamon Educational Productions, Hemlock Rd, Exeter EX2 8RP; also sold in high street stores, £9.95 each.

Those marketing *Falling on your Feet* want you to know that their product is street credible. Providing you have £9.95 (or multiples of £9.95 if you want to know about more than one career area) you can buy their videos from high street outlets where they will be displayed alongside the Beanie Mays. My guess is that if you are about 15 and have got just £9.95 the Beanie Mays and their marketing persons will get your money.

I suspect the real market for *Falling on your Feet* lies in schools and Careers Services purchasing on behalf of local education authorities and doing so on the advice of teachers and careers officers. Certainly, these videos will be of most use to young people who view them in groups led by adults who can draw out the very important messages they contain.

The general video, *Standing on Your Own Two Feet* is a case in point. It is not, as the blurb claims, about self-assessment. It is about starting work. Brilliantly produced and acted, it takes two well-conceived case studies which demonstrate hazards like sexual harassment by superiors, undue parental pressure and the painful consequences of taking the first opportunity whether or not it accords with a previous and carefully made career decision. In the hands of a skilled group leader it could be very effective indeed. Viewed at home by any young person who is not vocationally and emotionally mature, it presents a grim picture and naturally asks more questions than it answers.

The four videos covering different career areas (and more are expected) are similarly well produced and their content well considered. The case studies in the electronics film are particularly good. The one about a young woman working successfully as



Attracting high street shoppers

a technician after initially taking arts A levels is truly excellent and could itself form the basis of a whole discussion period. The stories of the young people in the agriculture film are similarly well presented as is the variety of careers in this modern industry.

I found the strong London accent of the commentator rather intrusive - if it were to be used for national sale it is wise to avoid a strong regional flavour. On the other hand, I suppose the subliminal message might just be that those who aspire to interesting careers and the South-east style of life should accept South-east values and the mode of speech which goes with them.

Incidentally, there is a message for examination boards in electronics: however BTCEC might mark its titles, young people still use language their fathers and employers understand and talk about "studying for HNC".

Each video is accompanied by a leaflet using the well-known "Working in..." prefix initiated by the Careers and Occupational Information Centre of the Manpower Services Commission.

This new venture deserves to succeed. Whether it can do so in competition with the mass of other video material available remains to be seen. Certainly the free ones from the MSC and the newly-marketing conscious DES provide no competition in the self-assessment field. But I shall advise my careers information officer to buy *Falling on your Feet*. I am sure his teacher colleagues will find it a valuable addition to the careers material already available.

David Peck is County Careers Officer, Shropshire.

Aids shock horror

David Panter on two new productions for the classroom

A Question of Aids
VHS £5 for hire or £15 for purchase within ILEA; £22 for purchase only outside ILEA

ILEA Centre for Learning Resources, 275 Kensington Lane, London SE11 50Z.

Aids in Your School
Charlotte Beyers, USA
VHS £95 + VAT and p.p.; £30 to hire Educational Media International, 25 Boileau Road, London W5 3AL.

"Controversial new sex education video on Aids" proclaimed the *Daily Express* (October 1). So it was with some excitement that I agreed to review ILEA's very own Aids video, *A Question of Aids*. Having received the video in anonymous brown paper wrappings I chose a time when I knew I would be home alone to settle down in front of the video recorder. Of course I had to be sure to draw the living room curtains so that no passer-by would accidentally get a glimpse of the shocking scenes soon to be enacted on my television screen. Feeling half nervous, half excited my trembling hand fed the video into the machine and pressed the play button... It was indeed a shocking sight but not quite in the way I had expected.

Gay men have been living with Aids for six or seven years, the rest of the community for two or three years, even the Government has been actively campaigning about Aids for almost a year now. This being the case, why has the Inner London Education Authority, heralded as one of the most radical in the country, taken so long to produce video material on Aids/HIV for use within its schools. Not only have they taken so long to act, but now that they have, the product is appalling.

The video is simply a visual presentation of the "visitor experience". Scene 1 - Young people brain-storming ideas and issues relating to Aids/HIV.

Scene 2 - Adult facilitating young people preparing questions for visitor.

Scene 3 - Young people put questions to visitor, Professor Michael Adler, who in turn answers them.

The questions asked by the sixth formers are well constructed and cover many issues: such as what is Aids? How do you become infected? What is safer sex? Should we carry condoms around? What do you think of the media coverage? It appears that the young people participating gain a lot from the presence of Professor Adler.

so the sincerity of the occasion is not in question. What is in question is the usefulness of this experience when presented on video.

I asked several teachers how they might use this product and none could identify specific classroom usage - partly because of the boring, static style of presentation but more importantly because they felt that the young people they were dealing with may well be frustrated by not having the questions they wished to ask being answered in the video. The constructive use suggested for the video was as training material for teachers themselves on how to use the "visitor experience" method.

If we are going to engage in effective Aids/HIV education in this country, the video medium has to be used to its full potential. ILEA achieve nothing in this one which could not better have been achieved through the distribution of written guidance notes for teachers on the "visitor experience". This is a retrograde step for Aids videos after the warmth of Central Television's *Coming Soon*, which utilizes the medium to good effect, conveying much information and insight.

This later video, I imagine, has been influenced by the style of those being produced in America. *Aids in Your School*, the latest release from Educational Media International, by Charlotte Beyers, is a good example of the American use of the medium. While the context of the video is nothing special, an interview with a scientist about what Aids is, an interview with a doctor about how to protect yourself and several interviews with people with Aids, the style of presentation is. Fast editing, pop music and the use of teenage presenters gives it pace and adds punch to the message.

This video also ends with an interesting twist in that it offers advice to school children on how to cope with and react to friends who are HIV positive. It quite rightly won the Cine Golden Eagle award at Cannes this year.

In the press release accompanying ILEA's video, Barrie Stend, chief of the authority's schools sub-committee, states that "there is an urgent need for accurate information aimed at young people which deals with the subject of Aids". I hope that in the future ILEA will add exciting and stimulating presentation to the urgency and accuracy, for without all three the cause is lost.

David Panter is Aids Information adviser, Islington Health Education Authority.

edits

SEETIMWAY
In order to help young people understand more about pet care, the RSPCA and Spillers have made a video called *See It My Way* which is available free on loan to schools from Spillers RSPCA Video, Dept 381, Mount Farm, Milton Keynes, MK1 1HQ.

It features actors Peter Davidson and Johnny Morris taking a look at the lives of everyday pets, from the animals' point of view.

MASTERCLASS
Education Secretary Kenneth Baker has launched a new Mathematics Masterclass video *Geometry and Perspective*. It will be distributed automatically and free of charge to local education authorities and other organisations for unlicensed copying. The video was produced for the Royal Institution of Great Britain by the BBC/Open University production unit and funded by the DES.

The Battle of Mortimer's Cross
VHS, £21.95
Spot Video Productions Ltd, 15 School Lane, Lenninstor, Herefordshire.

Local history has always been fascinating to amateur enthusiasts, poking into everything from Roman drains to the private lives of borough freemen. Empty fields have given up their secrets as well as ploughshares, their cannon balls and now - videos. Spot Video Productions have been discovered in other ages, the Knights of Outremer, the Pageant Masters, the East Anglian Dark Ages Society and many others who spend their time recreating armour and weapons, and refighting old battles; nothing new in itself but now new technology can preserve their work.

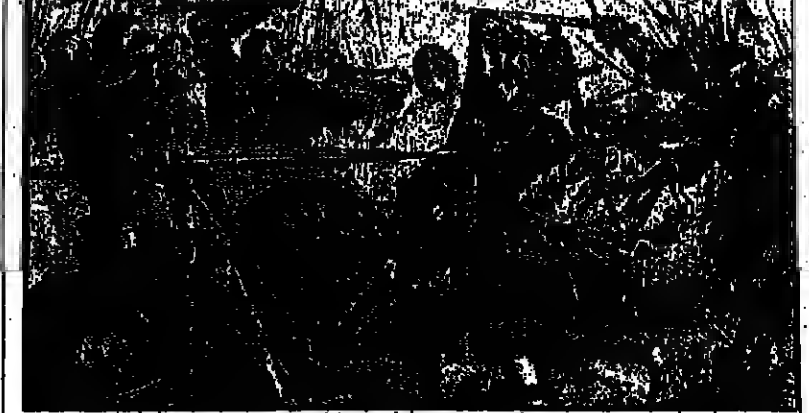
This has made them not just pursuers of historical knowledge but a kind of historical source in themselves. Theatre has recreated history for centuries, but as the basis for understanding historical situations, how "real" is this kind of video?

Local legend

Despite the technical filming skills, this is not Hollywood. The characters do not look like Harrison Ford or perform startling feats of camera-aided athleticism on the battlefield, but their amateurism makes them, curiously more "real" than the professionals of the big screen.

This video has many potential uses in the classroom. It is 80 minutes long but falls handily into sections which could be used selectively. The introduction of the causes of the wars is a clear but thoroughly Yorkist account - how unreasonable of Queen Margaret to want her son to succeed his father on the throne! There is some interesting and skillful use of models and paintings to recreate the battle scene, but the viewer occasionally feels for the actors who do not speak, but sometimes spend painful minutes having to look meaningful during the voice-over commentary.

The Bowman who tells the story of the battle is understandably biased towards the Yorkists, though, for a professional soldier he seems to have picked up a strangely educated accent and an unpartisan attitude to the goings-on in which he has so central a part. Nevertheless, his everyday lan-



guage represents an honest effort to inform rather than dramatize.

Detailed plans for a battle for which there is almost no documentary evidence, but plenty of local legend, and the final executions. The song, specially written and performed by Martin Blake of Blake's III, may not be authentic, but it lends atmosphere.

As video technology advances it should become more accessible to the amateur, and if *The Battle of Mortimer's Cross* is compared to the recent blockbuster on Mussolini, history is seen to be better served by local enthusiasm than by commercial hype.

Sue Jones

Extra

The Computers in Education Extra appears this week on pages 41 to 64.

NOBODY KNOWS HOW IT WORKS BUT IT GETS MONEY OUT OF KENNETH BAKER

ENTRANT 29

MEDIA



Past perfect

Gerald Haigh sheds a nostalgic tear

SCHOOL TELEVISION
How We Used to Live
ITV Schools
Channel 4 Tuesdays 11.30am, repeated
Fridays 9.59am.

For my money Yorkshire TV's *How We Used to Live* is one of the best educational series of all time. The dramatic format, by which we see the past through the eyes of ordinary people, is ostensibly simple. But to succeed with simple ideas requires that they be done very well. Here the cast is strong, the writing is literate and

vigorous, the period detail is meticulous and the points which invite classroom follow-up are introduced with great imagination and narrative skill. The latest series, comprising 10 programmes this term and 10 in the spring term, takes us from 1924 to 1970. In the first one the Brady family, who are central to the story, are moving from London back to their roots in the North of England. Here I confess it became emotionally a little too much for me. Susan Brady was the girl I grew up with; the *Bradley Gazette* was my own beloved *South Yorkshire Times*; indulgent Uncle Albert was an

amalgam of my father's jolly brothers. And when Michael Brady picked up the kettle which his daughter had burned and said "I'll bray her when I get hold of her!" then I knew I was home and I unashamedly wept.

In the second programme, Susan begins in 1955 to emerge with some hesitation as a teenager. The first teddy boy appears at the youth club and Uncle Albert converts his shop into the Sorrento coffee bar. As the programme fades he is happily handing over to Bill Haley and the Comets surrounded by rocking youngsters. The strength of the casting is underlined by Bobby Knutt's affectionate playing of Uncle Albert. All the detail, of course, is spot on, from the flower bowls made from old 78s to the lads whose speech is permanently stuck in imitation of various *Goon Show* characters.

There is a problem in all this, of course, in that the study of recent history can too easily become a sort of nostalgic wallow for the middle-aged teacher. It is clearly necessary to reach beyond this and to construct a real historical perspective for the period. The teacher will pick up most of what is necessary from the programmes themselves – the economic and social changes as Britain moved from the shadow of the war, growing awareness of tensions in the Middle East; the ebb and flow of the cold war.

What really helps to keep things in focus (though is the excellent booklet of teachers' notes which points up the main themes and gives ideas for preparation as well as for follow-up. There is also a very good pupil workbook. My only criticism is the entirely trivial one that the vehicles, as in so many period productions, are all far too clean. They are, I assume, hired from enthusiasts who keep them looking better than they did in real life. The *Bradley Gazette* has a Fordson van which is in better nick than when it came from the factory. Perhaps ITV should have paid extra for the right to throw a bit of mud over it.

Future imperfect

Paul McGee looks at another world

CONTINUING EDUCATION
Welcome to My World
BBC1, Sundays 11.00pm
From October 11

This series is intended to set part of the agenda for the debate about the threats and promises which technology offers. Robert Powell reports from beyond the information wave – from the future of information technology has come true – is only one possible world. But we are left in no doubt that we are well on the way to it.

The five programmes each begin with a fictional news report from the future, followed by the comments of the well-known pundits. The story usually gets lost and the format makes it difficult to tell whether the views are about the fantasy or the present. "The Refusal" (programme 1) looked at the possible effects of increased automation. It is rather frightening to hear Rex Malik say that he sees the total elimination of people from the production process and for this to be followed by Charles Lecht saying that he really believes machines can do everything better than people.

"The Leak" (programme 2) looks at how the efficient use of information poses threats to individual privacy and to the individual's access to information. In an ideal world, the new power would not be money in the hands of the few but information in the hands of the many. This vision could be shattered if information is treated as just another commodity which can be bought and sold. The "news story" of a leak from a secret government

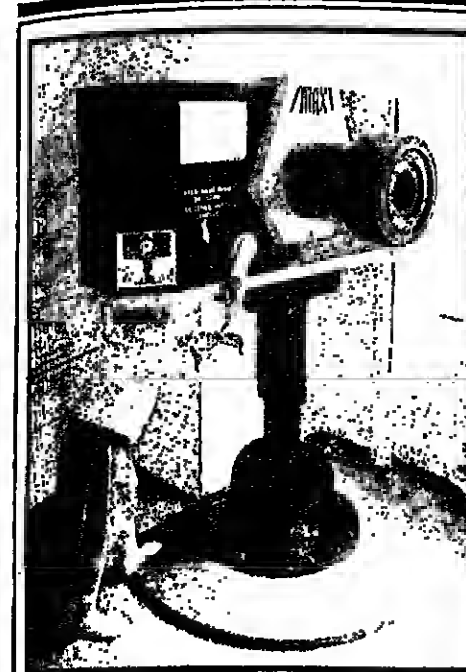
computer obscures James Martin's crucial point that it is the automation of intelligence that is frightening.

In a world where the international money markets resemble a gigantic casino which never closes, information about money becomes more important than the money itself. As the machines do more of the drudgery of transferring it, the valued skills are those which decide the rules the computers use to make their decisions about buying and selling. "The Rip-off" (programme 3) contains the best of the five stories – a tale of what could happen if the computers went wrong and all started to sell.

Computer fraud is portrayed as impersonal: criminals rarely know whom they are harming. This point is echoed in "The Peet" (programme 4) which investigates the human role in future warfare. In the midst of a tedious "scenario" of future alliances, there is a fascinating conversation where a Tornado pilot and navigator accept that they control the aircraft "if the electricity or the computer fail, but later generations, being totally unable, rely on the computer".

"The Forger" (programme 5) asks whether individuals really have computer power or merely computer toys. Stunning graphics hide a superficial argument.

Robert Powell's very careful delivery could help viewers consider the important issues raised in the series but it could just as easily leave them bored. The series shows how the importance of information technology goes far beyond the usual wealth creation arguments. It should be compulsory viewing for Mr Baker's advisers, who have given learning about IT such a low priority in the proposed National Curriculum.



Smile please: candid camera at the Kindermuseum



Hands on

Jane Marshall visits the Brussels children's museum

Four or five children sit astride the receiver of a giant telephone, sliding off one by one on to cushions to be replaced by others climbing up the dial. A four-foot-high hollow wooden caterpillar nearby encourages the energetic to crawl through its dark body and identify by touch the different materials under their hands and knees: rubber, coconut matting, fur, bristle, bags of sand.

In an adjoining room a dozen girls round a table are carefully cutting out and assembling animal masks; upstairs, painters are daubing colourfully on to large sheets of paper, sculptors are modelling clay. In the kitchen, one group is turning out a successful batch of cakes, and in a small theatre on the top floor another is composing and rehearsing a play, to be performed to the public at half past four.

It's Wednesday afternoon at the Children's Museum in Brussels where, on their half-day off school, over 300 youngsters aged between four and 12 have come to have a great time – and, though they might not realise it, to learn – at a hands-on exhibition where everything is for touching, making and experimenting with.

The following Friday morning two parties of children, one from Brussels, the other from Henricus in the Ardennes, visit the museum on school trips. The scene is quieter, more organized than Wednesday's apparent chaos as the pupils, with no less interest and enthusiasm, make their way round the exhibits in small groups, each with its own animator to explain how things work, offer guidance as the children try for themselves, supervise games or tell stories.

For over a decade the museum has amused, enthralled, entertained, occupied and, above all, educated countless thousands of children. Its basic principle is to touch them through encouraging their natural curiosity and by providing exhibits they can not only look at, listen to and admire, but also touch, use and make work.

Visits in the early seventies to the Boston Children's Museum in the United States inspired director, Flemish child psychologist Catherine Lippens, to start something similar in Brussels: "I was very impressed by the idea of learning by playing, and my son, who was then two, obviously enjoyed it."

After her return to Belgium it took her, and willing friends, three years of determined effort to set it up "absolutely from scratch". They initially needed a million Belgian francs – "I'd naively thought the government might provide a building, but in the end we just had to find a house and pay rent" – and their first sponsor was the Morgan Bank which contributed half the sum on condition they could match it. "We rang lots of doorbells,"

Hold on please: communication is one of the main themes of the latest exhibits

she remembers. In October 1976 the museum opened, first for school visits only, then to the public a couple of times a week. A membership scheme was started to raise the funds of between one and two million francs a year needed to run it. Belgium's complicated political system, which splits the population into Flemish-speaking and Francophone communities with separate ministries of culture and education for each, made it hard to get government support; but now the museum receives an annual government subsidy of 100,000 francs.

Belgium's Queen Fabiola has taken an interest in the museum since it started, and on its tenth anniversary she became patron for a year. The museum also celebrated its first decade with a move to spacious new premises which replaced its first home, a tall, narrow townhouse which had become too cramped.

Now the museum is accommodated in an elegant mansion. In a small park, donated rent-free for 27 years by the local commune (borough), lies a large, modern building, the black, gold and red stripes of Belgium, and one with the museum's symbol of outstretched orange hand with a smiling face on it.

Inside, hanging on the wall of the entrance hall, is the motto of the museum, the Chinese proverb: "I hear and I forget; I see and I remember; I do and I understand."

Much of the charm and originality of the museum are due to the imagination and skill of Fons de Weert, resident designer and craftsman who makes nearly all the exhibits. His work also includes the tree-like coat-stands at reception, and the caterpillar that curl along the marble balustrade, preening children from sliding down.

He is the only full-time member of staff totally paid for by the museum, an independent, non-profit-making organisation which relies heavily on voluntary help. The five-strong administration team is unpaid, the wages of four workers recruited from a youth employment scheme are mostly financed by the government. There are also 10 part-time student animators, and 15 weekend volunteers.

Each year they welcome 45,000 children, and receive visits from 350 schools both from throughout Belgium and from other countries, especially neighbouring ones. All the signs and activities are bi-lingual, in Belgium's two main official languages, French and Flemish (a dialect of Dutch). But visitors of many other nationalities come too, says Catherine Lippens, and nearly all the assistants speak German and English.

Favourite features are the animals – rabbits, guinea pigs, mice and fish – a well-equipped kitchen and the theatre where one or two short plays are staged and performed. The museum also has a small library and a play area.

children can plant seeds, a café and special facilities for the handicapped.

But most of the space is devoted to the museum's current theme, Communication, which will feature for two years altogether and is symbolised by the huge telephone, one of the first exhibits visitors encounter. "Not just communication through machines and mechanical means," explains Michelle Clette, one of the staff, "but especially contact between people – sight, hearing, touch, smell, taste, body language, writing, gestures and games."

So mirrors hung next to models of angry, sad or amused faces encourage children to imitate the expressions; a panel of buttons activates lights to reveal what areas of the brain control different body functions and actions; Braille pages, playing cards and dominoes demonstrate how the blind "see" with their hands. A room given over to writing covers its evolution from scratches on stone and papyrus, through hieroglyphics and quills, to ball-points, felt-tips and computer print-outs.

A little art gallery shows prints of paintings illustrating Spring. "We chose pictures by a variety of artists – Botticelli, Pissarro, Klimt and others – to show the children that each communicates the same ideas in his own way," explains Michelle Clette.

Games of communication also involve dressing up in uniforms that denote kinds of profession – lawyer, doctor, police officer; expressing emotion and mood for given scenarios; fitting signs, jigsaw-style, into a street scene. Illustrations show how people started to talk by copying noises, and how cockerels crow "differently" in different languages: "cock-a-doodle-do" in English, "cocorica" in French, "wowowo" in Chinese.

The childrean can film each other with a model movie camera so they appear on a TV screen, learn how a newspaper is printed, experience working in a computerised travel agency or in a post office.

When at last they have worked their way through the museum, the children find at the top a dark forest with a gingerbread house and castle tower they can climb. A witch flies overhead on a broomstick. Sometimes one of the staff will tell them a story as they sprawl on the cushions inside the cottage; and that, so children tell me, is the best means of communication there is.

The Children's Museum (Le Musée des Enfants Het Kindermuseum) is at 15 Rue du Bourgmeestre, 1050-Brussels, telephone (010-32) 2144.01.07. It is open to the public on Wednesday, Saturday and Sunday afternoons during term, and every day during school holidays, from 2.30 to 5pm. School parties are invited to visit on a full day (the place on book). The museum also has a small library and a play area.

Tales of cheese and mice

SCHOOL TELEVISION
Storytime
BBC2, Wednesdays 2.02pm; repeated
Fridays 1am.

Although the title of this series doesn't exactly conjure up new and exciting images, each programme is presented in an imaginative and lively way with a nice mix of reality and fantasy related to children's own experiences. *Storytime* is a new series featuring stories, both new and well known, for four to five-year-olds. They are told by a number of storytellers, and have been chosen to provide the children with a richness of presentation and style. The

clarity of storyline in the books used is supported in a number of ways – through props, artefacts, cut-out figures, sequential pictures, and puppets.

The programmes give opportunities for participation not only in sharing the storytelling but in the linking of songs and rhymes. Each story has its own related activities, examples of which are briefly outlined in the accompanying pamphlet, which is based on programme one. Many ideas are suggested for extending each programme apart from simply enjoying the story, it is hoped that children will enter into the world of the characters, make links with their own lives, learn about new things, and learn about relationships.

The first story in the series, "The King, the Mice and the Cheese" is an Indian story, in a traditional setting, of a cheese-loving king whose palace is invaded by cheese-loving mice. He orders his administrators to solve the problem. They bring in mice-chasing cats... to get rid of the cats they bring in cat-chasing dogs... and so on. In the end the king is forced into making a compromise with the mice.

The story part of a delightful programme is introduced by Joyce Griffiths who thinks "Mice are rather nice". (She has her own mice finger puppets, too). We then see the link with reality as two little mice scuttle round a house, accompanied by children's commentary. This admirably sets the scene for

a story which begins with the book and, almost imperceptibly, changes to animation. The concluding shots take us into school, where children are using the library, acting out plays and making "chasing" stories.

The early programmes are of a high calibre, and Joyce Griffiths, especially, is well suited to storytelling, as she rotates easily to the children. Many very enjoyable stories are included in the series, and one of the newer ones, "Jim and the Beanstalk" is quite an imaginative sequel to the old tale.

The *Storytime* programmes are great fun and this BBC series has been well thought out, drawing in many different varieties of experience related to the art of storytelling. They should prove popular with a very large number of four to five-year-olds, and will be even more popular with educators, once the teachers' notes are available.

Penni Cotton



ISSUES

A current affairs series for teenagers

THE GULF WAR

How did it start?
Can the UN succeed?

ISSUES – a new series from BBC School TV which examines a topical event every fortnight

BBC Thursday 22 October 12.25–12.50
Repeated Thursday 29 October 12.25
and Monday 2 November 12.30

FREE TEACHERS' NOTES VIA CEEFAX TELESOFTWARE

BBC EDUCATION



THE NOW over merchandise-related TV cartoon series like *Thundercats* rumble on to the tune of jingling cash registers. BBC and ITV have been accused of serious extended commercials for toys. And there will be a *Masters of the Universe* live action feature film at a cinema near you this Christmas, probably involving sales in the foyer.

Now a new super hero has arrived on the scene – Terence Conran. His stock a new breed of non-violent sales travelling toys called *Explorer 12*. BHS say that it is a deliberate attack on the TV toys which are said to provoke violence.

"For the first time in history, all governments are united in a single cause, the survival of humanity," says the publicity. *Explorer 12* has and their vehicles "are committed to an exploration of uncharted regions of the world to find new lands to settle and energy resources to tap." If this sounds like the beginning of new colonialism, fear not. The scientists may well be plotting to barter merchandise like *Explorer 12* for a problem is represented by a cartoon of a man in a suit, holding a briefcase, and a woman in a dress, holding a shopping bag.

However, it now seems that children won't buy a certain sort of toy without first having seen it on a TV screen. Deciding for the moment against expensive TV advertising, BHS are to experiment with a £25,000 point of sale video. While mum or dad is at the cheese counter, the kids can watch a nine-minute story about *Explorer 12*. There is one fatal problem with POS video, as shown to long captive queues in main post offices. As they are programmed to repeat themselves six or more times an hour, their sound tracks drive counter staff round the bend. Usually the volume gets turned to zero.

SPORT AID's young roving reporters are now back from visits to developing countries and their reports about how young people live in places like Zimbabwe, the Philippines and Guatemala are now hitting the airwaves in Britain. Thomas Sankara, the president of Burkina Faso, announced in an interview that he would like to form a rock band with Bob Geldof.

Reports can be seen on the BBC's Saturday morning show *Going Live* and on Radio 1's *New Beat* programme over the next five weeks. The idea, first, and fund-raiser second. All the people in developing countries face, and more importantly, positive ways to solve problems. No problem is represented by a cartoon of a man in a suit, holding a briefcase, and a woman in a dress, holding a shopping bag.

young reporters. Their personal reports will be entirely genuine. Although the reports appear in BBC broadcasts, Sport Aid's media wing is becoming increasingly independent. With sponsorship backing, they hope to produce a half-hour television programme in the new year. This will again be made by young people for young people, and will be available, free of charge, to any TV network in the world willing to screen it.

THE LATEST in the great tape debate: figures recently released by the British Phonographic Industry reveal large-scale thefts among your pupils. Four out of five eight to fourteen-year-olds tape illegally; mainly from the radio, contributing significantly to a total yearly theft valued between £300 and £400 million in lost sales, according to the BPI. They suspect that the rumour (last week's *Off Air*) that the Government may drop the levy from forthcoming legislation was started from within the audio tape industry.

In support of the levy, the BPI are keen to tell children that paying out that extra pocket money will mean they can legally "buy" a pop record for less than 10p. The BPI are willing to provide free material – and even live speakers – to interested schools. For details write to Sarah Davis, BPI, Roxburgh House, 273 Regent Street, London W1.

Nick Baker

Wiltshire

AN EQUAL OPPORTUNITY EMPLOYER PRIMARY EDUCATION HEADTEACHER POSTS

St. George's C.E. (Controlled) Primary School, Pound Lane, Semington, Trowbridge, BA14 8LP.
N.O.R. 82
A Head Teacher is required from April 1988, following the appointment of Mrs. O. R. Palmer-Sims to another school within the County. This is a village school in modern buildings situated in the area of Trowbridge. The Governors seek a dynamic and experienced teacher who will be committed to the academic and a wide range of extra-curricular activities and will foster links with parents and the wider community.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

Chilmark C.E. (Aided) First School, The Street, Chilmark, Salisbury SP2 5AR.
RE-ADVERTISEMENT
Group 1
N.O.R. 26
A Head Teacher is required for this two teacher school from April 1988, following the retirement of Mr. C. J. Penny and the completion of a review by the Education Committee of primary school provision in the area.
Chilmark is a very attractive village set in pleasant country some 12 miles west of Salisbury.
Candidates should be committed Christians in sympathy with the aims of a Church school.
Previous applicants will automatically be reconsidered.
Please quote reference ST77/PM/8.
Closing date 6th November 1987.

Monkton Feleigh C.E. (Controlled) Primary School Monkton Feleigh, Bradford on Avon, BA18 2QD.
Group 2
N.O.R. 52
A Head Teacher is required from April 1988, following the appointment of Mr. M. Rix to another school within the County. Monkton Feleigh school serves two small village communities to the East of Bath.
The Governors seek an experienced teacher who has worked with both infants and juniors and will preserve the caring, child-centred atmosphere of the school. Applicants should have a topic-based approach, be willing to participate in village efforts and can carry on some of the established traditions of the school.
Please quote reference ST77/6/GM.
Closing date 6th November 1987.

Application forms and further details (SAE please) for the above posts to the Chief Education Officer, Education Department, County Hall, Trowbridge, BA14 6JS.

MAIN SCALE INCENTIVE ALLOWANCE B

Headteacher
Mr. A. R. Betterham, M.Ed.
Longleaze Primary School, Longleaze, Wootton Bassett, Swindon, SN4 6BA.
Estimated January 1988
N.O.R. 232
Required from January 1988, a Main Scale (Incentive B) experienced and enthusiastic teacher to undertake a key position in the infant department of this semi open plan school. The successful applicant should possess skills in Mathematics and be familiar with the use of the computer. The person appointed will assist with Primary/Secondary liaison and field study work.
Application forms and details available from the Head Teacher (a.s. please). Closing date for completed applications 2nd November 1987.
"Wiltshire is an equal opportunity employer."

MAIN SCALE

Headteacher
Mr. A. R. Betterham, M.Ed.
Longleaze Primary School, Longleaze, Wootton Bassett, Swindon, SN4 6BA.
Estimated January 1988
N.O.R. 232
Required from January 1988, a Main Scale experienced and enthusiastic teacher to work in the Junior Department of this semi open plan school. The person appointed will be expected to offer some curriculum specialism to support the work of the team.
Application forms and details available from the Head Teacher (a.s. please). Closing date for completed applications: 2nd November 1987.
"Wiltshire is an equal opportunity employer."

Headship

Guntton Park County Primary School,
Lowestoft
Group 5 Ages 5-9 Initial Roll: 200 (rising to 300 by 1992)

Applications are invited from suitably qualified and experienced teachers for the post of Headteacher.

This is a new school with excellent facilities opening in September 1988. Situated in the northern part of the fishing, industrial and resort town of Lowestoft, it will serve a mixed residential area.

The appointment will date from the beginning of the Summer Term 1988.

Application forms and further details are available from the County Education Officer, St Andrew House, County Hall, Ipswich, IP4 1LJ. (SAE please), and completed forms should be returned by 6th November 1987.

Suffolk County Council

PRIMARY HEADSHIPS

BERKSHIRE
ROYAL COUNTY OF BERKSHIRE
CROWTHORNS C.E. PRIMARY SCHOOL
Rushmore, Reading, RG2 9AT.
N.O.R. 183
Required from April 1988 a Headteacher for this Group 4 school. The school is a primary school with a strong academic and sporting tradition. The school is situated in a pleasant area of the county.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

BROMLEY**ST ANNE'S R.C. PRIMARY SCHOOL**
Ritchell Road, Orpington, Kent SE8 6BT.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

CAMBRIDGESHIRE**COUNTY COUNCIL**
An Equal Opportunity Employer
PRINCIPAL
Rushmore, Reading, RG2 9AT.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

DEVON**COUNTY COUNCIL**
Please see separate advertisement on page 83.
110010

DORSET**PARLEY C. FIRST SCHOOL**
Glenmore Road, Dorchester, Dorset, DT1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HAMPSHIRE**RIMWOOD C.E. (COTTONS) INFANT SCHOOL**
Rushmore, Reading, RG2 9AT.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HAMPSHIRE**WIMBORNE COUNTY JUNIOR SCHOOL**
Wimborne Road, Wimborne, Dorset, DT9 8JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HEREFORD AND WORCESTER COUNTY COUNCIL
BACRY FIRST SCHOOL
Bacry Lane, Sedbury, Wetherham, WR11 3JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HEREFORD AND WORCESTER COUNTY COUNCIL
RECOITER ST. LUKE'S C.E. PRIMARY SCHOOL
Plymouth Road, Redditch, Worcs. B24 4NU.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HEREFORD AND WORCESTER COUNTY COUNCIL
Application forms and further details are available from the County Education Officer, St Andrew House, County Hall, Ipswich, IP4 1LJ. (SAE please), and completed forms should be returned by 6th November 1987.

HERTFORDSHIRE**CIVILIAN INFANT SCHOOL**
With Nursery Class & 60 seats
Lansbury, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

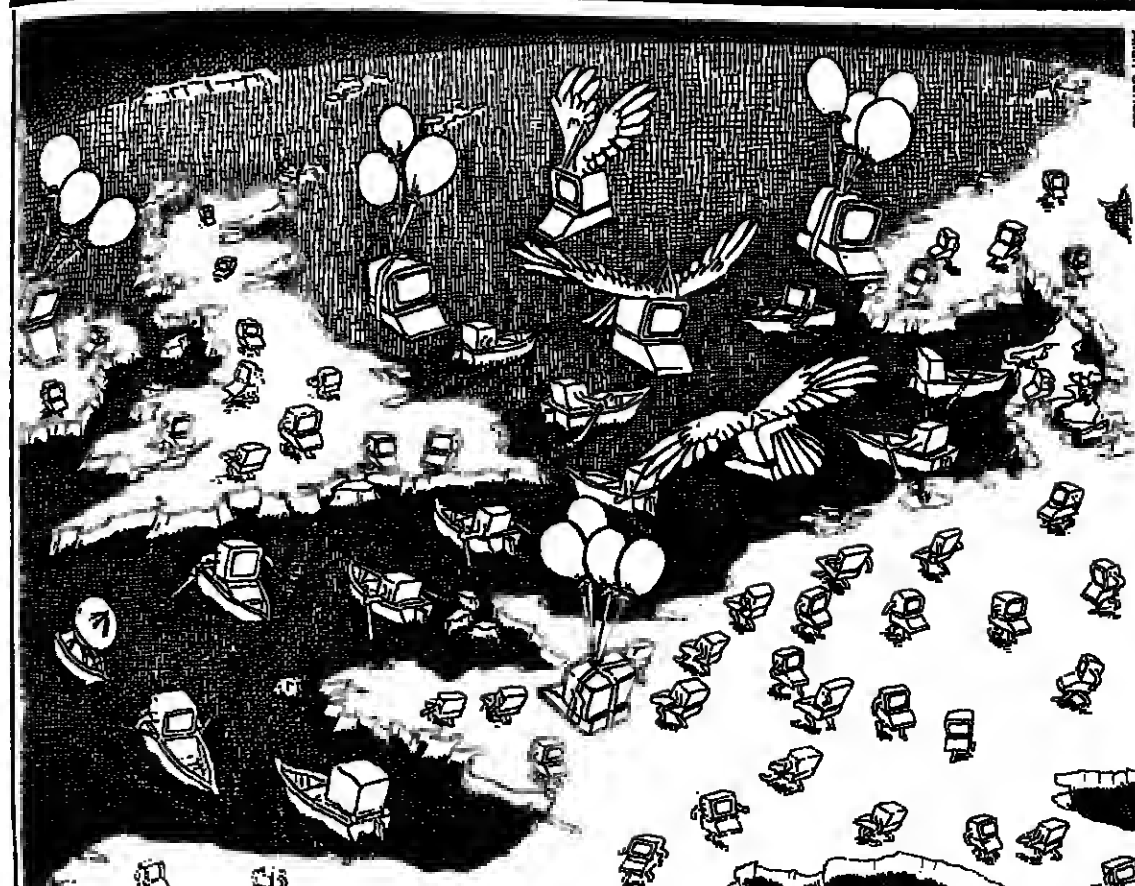
HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

HERTFORDSHIRE**COUNTY COUNCIL**
NORTH HERTS DIVISION
WORMLEY VOLUNTARY SCHOOL
St. Laurence Drive, Wormley, Hemel Hempstead, Herts. HP1 1JL.
N.O.R. 183
A suitably qualified and experienced teacher who is a practising Catholic. The school is a very high standard and has a strong musical and cultural tradition.
A full application form and particulars are available from the Headteacher, St Anne's R.C. Primary School, Ritchell Road, Orpington, Kent SE8 6BT.
Closing date: 6th November 1987.
Please quote reference ST77/PA/LT.
Closing date 30th October 1987.

Computers in Education



Free market

Over the last six years, the UK has generated a considerable amount of software for use with computers in schools. This has been developed to work with the early BBC microcomputers, the BBC Micro, and the BBC Master. The software is now available for a wide range of computers, including the IBM PC, the Amiga, and the Atari. The software is now available for a wide range of computers, including the IBM PC, the Amiga, and the Atari. The software is now available for a wide range of computers, including the IBM PC, the Amiga, and the Atari.

Wider use of the present materials has been limited by the small amount of hardware in schools, and the new money should help to rectify this. However, the hardware limitations were also restricting factors in the design of programs, and the new designs on offer provide substantial steps forward. More memory, greater processing power, better graphics, are now part of the school machine, and provide scope for using more stimulating programs. And by looking to international standards, access to more diverse software becomes possible.

Technical developments will add further to the scope that teachers have available to them. The Council for Educational Technology is currently overseeing the evaluation of Interactive Video in Schools project. The project is a joint venture between the Council and the Department of Education. The project is a joint venture between the Council and the Department of Education. The project is a joint venture between the Council and the Department of Education.

THIS WEEK

- MESU** 42
What is the Microelectronics Education Support Unit doing? John Foster, director of MESU reports
- PRIMARY** 43
Computers across the curriculum - a MESU project; a research study on the use of computers with recommendations for the future
- SECONDARY** 46
The nature and purpose of computer studies; a new syllabus for A Level computing
- SPECIAL NEEDS** 48
What is the future for the SEMERCS, the Special Education Microelectronics Resource Centres?
- MANAGEMENT** 49
The Government's proposals for local financial management create a new demand for computerization
- HARDWARE** 50
Joe Telford responds to the DES document 'New Technology for Better Schools', and offers guidelines on how to spend the education support grants
- TECHNOLOGY** 54
Interactive video - a review of the Interactive Science Laboratory, and an Interactive Learning Project in Newcastle; CD ROM - a new publishing medium
- LANGUAGES** 56
Smalltalk and C - languages for the future; Logo in the classroom
- BOOKS** 58
Intelligent CAL - new directions, plus reviews of books for GCSE, librarians and PE teachers
- SOFTWARE** 60
Developments and reviews of programs for primary and secondary, desktop publishing, mathematics, French, science, music, economics and adult literacy

Wheels. Just what the computer needed.



Because we'd like to show you our full range of latest developments (including the Nimbus PC-186, AX-286 and VX-386 microcomputer series) RM is taking to the road on a six-month tour reaching over 30 British towns and cities - and of each stop we'll be making a series of presentations and demonstrations.

If you and your colleagues would like to join us when we're in your area, you'll be able to see a wide range of powerful applications for all levels of education. We look forward to seeing you!

Please detach and complete this form or phone Sarah Hirst or Samantha Ford at Research Machines on Oxford (0865) 726370 (direct line) or 249866 (main switchboard) and we will send you details of the locations and dates.

8788 NIMBUS ROADSHOW
Research Machines Ltd
Mill Street Oxford OX2 0BW

I/we would like to visit the RM Nimbus Roadshow

NAME	POSITION
DEPARTMENT	
ESTABLISHMENT	
SECTOR: PRIMARY/SECONDARY/FURTHER/HIGHER/	
OTHER please specify	
ADDRESS	
POSTCODE	TELEPHONE

EDINBURGH GLASGOW NEWCASTLE UPON TYNE MIDDLESBROUGH SHEFFIELD MANCHESTER LIVERPOOL
ELGIN ABERDEEN HUDDERSFIELD BRADFORD LEEDS

The well-kept secret

MESU has been staffed for just over nine months and yet there are those who consider us still to be a well-kept secret. We are certainly different from the Microelectronics Education Programme out of whose ashes we can be said to have emerged. We have different tasks and a different structure.

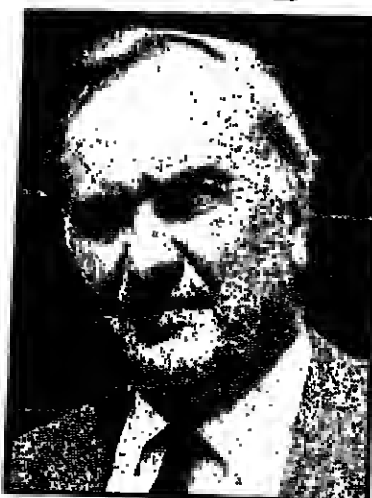
Our Coventry unit has a staff of 42, divided into curriculum, information, technical and administrative support teams. We are managed by a board appointed by the Department of Education and Science and chaired by Mike Nichol, the Director of Education for the Wirral. The board has a membership that reflects our remit — three advisers, a teacher-trainer, heads of secondary and primary schools, the directors of the Schools Curriculum Development Council and the Council for Educational Technology, an educational publisher, an industrialist and a professor of microelectronics. There are also the usual mass of assessors from all the interested government offices.

Defining our task is comparatively simple. Its execution is not. We have, simply, to get new technologies used across the curriculum wherever they are appropriate. In this we are commissioned to work with the local education authorities and teacher trainers and to provide an information service that ensures that the profession knows what is going on in the new technologies — research, good practice, publications, reviews, materials, developments and needs. We have to support the training of the trainers, both in-service and pre-service, and to collect and commission materials that will help teachers exploit the power of new technologies.

We have five teams of people who between them will visit all the I.E.s and institutions which deliver initial teacher training. We have two people nominated in each authority and information technology training establishment who serve as our initial contact points. Between us we are putting together a comprehensive picture of what is going on: plans, strengths, and perceived needs. We will be sending these contacts all the information that we would like them to disseminate to their colleagues, and in case this fails, much of it will also be sent to the appropriate subject associations and the unions, as well as to on-line information services and the School Library Services.

One real problem is that we are likely to impose a load on a system that may not yet be equipped to carry it, but we hope to demonstrate the value of effective information by passing around examples of good practice as we find it and by testing out systems ourselves.

In the Coventry unit, we have in addition to BBC and Nimbus networks, a network of 22 32-bit Touch computers, running under Unix. This enables us to pass messages, consult



What is the role of MESU? John Foster, director of the Microelectronics Education Support Unit, replies to his critics

each other's diaries, pass word-processed text to be reformatted through Apple Macintosh desktop publishing, do the accounts, consult and add to our in-house database and, through British Telecom's PSS lines, get into on-line databases worldwide, and electronic mail services like The Times Network and British Telecom Gold. Many of our staff, who spend a considerable time on the road, are also equipped with Zenith laptop computers; these have a built-in modem which enables them to get access to their computer from a BT socket anywhere and so into the services available in them on the Telenet system.

Two main in-house databases are being developed. One is a very powerful, though comparatively conventional one from the user's point of view, called Tintin. The other is a freetext database, BRS, which will find keywords in context from reports written within the unit. These, together with our access to remote data on Prestel, Noris, TTNS, Dialog, World Reporter, Infotrieve or Blaise, help us to service a high proportion of the information needs of the unit, of our contacts and of the people connected to us. The information given will, as nearly as possible, match the needs of the "client". *Alas, in the case of the "client", it is not a matter of choice.* We cannot make this service generally available; however, regular queries through our contact will lead to published information sheets that will be fed into the system.

All the information coming in from our visits, from contact with HMI and from the many organizations with which our staff are associated, is given to the whomever we recommend may also be set specific tasks by the DES, which funds us, and by others, like the Department of Trade and Industry which recently commissioned us to research and develop the use of "floor turtles" in schools.

We are able to adopt a different stance from that of MEP in the early days. There is so much more talent around and knowledge of what is possible in both educational and computing terms. So we commission activities and do not usually respond to unsolicited requests for funding. This is in part because of our lower level of funding, but it also now seems right that we should be seeing priorities largely through the eyes of the I.E.s and ITT establishments.

Our team members can draw on a spread of experience across the curriculum, in each phase of education and the full range of abilities. We have five primary staff, one per team, each with particular strengths. As well as the Special Needs Co-ordinator, who survives the demise of the SEMERC (see page 48), we have the range of curricular skills of the SEMERC staff who are integrated as far as possible with the activities at Coventry, making sure that we never overlook the 20 per cent with special needs in the ordinary school nor the needs of special education.

The curriculum staff maintain contacts within their specialism, co-ordinating seminars from time to time at the unit. They advise us on bids for money that result from our invitations to tender. They will be responsible for keeping in contact with the successful bidder, monitoring the project's progress with the help of an expense committee if appropriate.

Our commissions may or may not involve the writing of new software but they will certainly involve putting the materials into a classroom context, addressing the problems of classroom management (for example, how can the learning be managed if there is only one micro?) and the problems of in-service associated with the introduction of new ideas. We already have several picks of curriculum materials commissioned, all of which will involve teachers and children in thorough tests and trials before they are published and, to some extent, will be spreading or building on existing good practice.

Besides the directly-commissioned production of materials, we will also commission research and development from time to time. ITM at the College of St Mark and St John in Plymouth have already been commissioned to work on classroom observation of the problems of primary-secondary continuity. At the same time, groups of teachers in every province, i.e. are addressing the same problems and sharing some solutions.

We have established three fellowships so far. John Martin continues the work he began for MEP at Salford University, building ideas on from his successful *Microelectronics for All* materials. Phil Ellis at the University of Warwick is working on microelectronics in music (while Colin Wells at Reading University produces curriculum packs). Richard Millward at King's College (Chelsea) is working on software tools which can help transfer programs from one system to another.

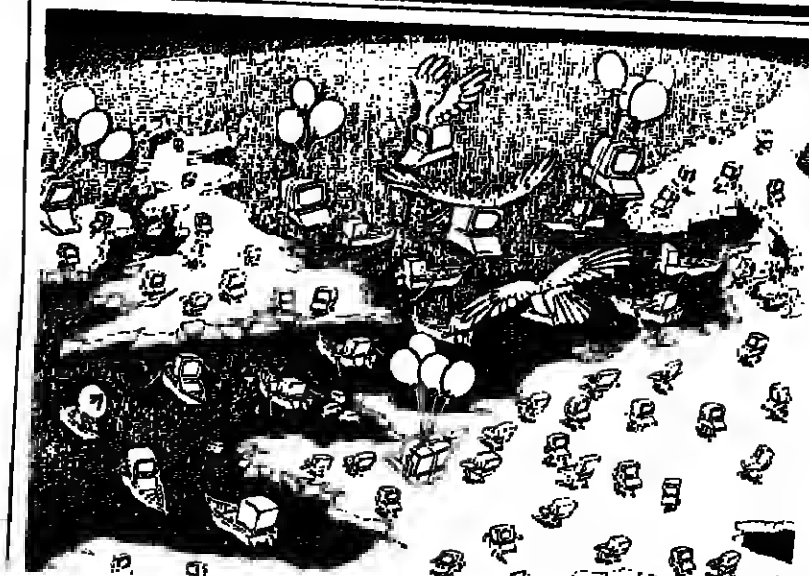
The problem of transferring programs has led to our support for the Educational Software Developers' Forum, a group of software professionals who write exclusively for the schools' market. Software portability has become a major international concern, and we hope to work with the Scottish Council for Educational Technology, the DTI and others on establishing standards and protocols to this end.

Within the unit we have our own professional support team. This means that we can use desktop publishing, graphics, photographs, video (highly) and electronics or off-set printing to publish in-house materials quickly and to high standards. We have engaged in the production of video case studies showing good practice; we have had a lot of requests for this sort of support for in-service and pre-service training. We have been involved in the design and printing of trial materials for a history pack that we commissioned with support from English Heritage, *Digging Deeper into History*. We have also worked on the production of a prototype for adding sensors to a data logging device, and the printing of A3 overlays, function key strips and documentation, plus the duplication of three discs for *Prompt-Writer* (developed from the Special Needs Software Unit's *Prompt* and the MEP Primary Team's *Writer*). These are not yet ready for distribution.

Our current main task is trying to prepare for the rush of advisory teachers that the DES's new education support grant will feed into the I.E.s from April. As part of our task of supporting the training of the trainers we are building up information and materials that will help them. Since they are to be chosen for their particular curriculum expertise rather than for a great knowledge of information technology, we have been commissioned by the DES to develop proposals for their training both in general IT and in the use of IT in their own specialism. We have also been asked to develop materials that they can use in the classroom.

We have barely started on some parts of our original brief like our support role to staff development across the curriculum in initial teacher training. A national view of IT across the curriculum will present new challenges, especially in attempting to individualize learning in this new context. But MESU has only a year and half to go before its achievements are reviewed. We are scheduled to end in April, 1991. Everything we do is designed so that it can be taken over by someone else, but there is still so much to do.

MESU can be contacted at Unit 6, St William Lyons Rd, Science Park, University of Warwick, Coventry CV4 7EZ.



Free market

continued from the previous page

approaches to evaluate their potential. In particular we are studying the movement of data and the portability of programs.

Communication is an essential part of learning, and the new technologies provide a wide range of opportunities from the simple word processor to the complex visual essay using interactive video. Analysing the problems and potential is an active part of our work. We are currently investigating computer conferencing. While it appears to have potential in the discussion and dialogue stage of research development, it also offers the possibility of assisting directly in learning, perhaps most obviously in the initial stages for schools that are involved in methods like supported self-study.

One advantage of supported self-study is that it helps to prepare children to work on their own when they leave school. In all its investigations and guidance, the CET is endeavouring to ensure that as learners pass from one environment to the next, the tools and methods which they meet and use have some sense of familiarity through continuity.

The problems of learning to learn have featured a great deal in recent databases on education, and are of increasing importance for children moving into an adult life that is not nearly as secure and certain as that of their parents and grandparents. If the new technology is to help them, there must be some similarities between the school environment and afterwards. Neither the machines nor the software need be the same, but it must be easy to switch between them. Increasingly, the machine matters less and less, but familiarity with the way of using software becomes more important.

Students in FE and training, or those who are learning at home, must feel at ease with the software behaviour, and find the interaction simple

and obvious. The CET is just completing an EEC study of the value of information technology for students with learning difficulties in FE. This demonstrates how stimulating simplicity of use can be.

In another project, we are evaluating initial experiments in the use of expert systems in training and in guidance work for the MSC. The results will help us formulate advice to encourage the continuity of learning throughout life.

This is a target across Europe, and CET's close liaison with institutions and groups working on software for schools in many parts of the world keeps us in touch with the latest developments. Joint software development is an important aspect.

Already some schools are in communication with others in Europe and are using European databases. The movement of data and programs between nations is already taking place, and will accelerate. In 1992, when Europe becomes a "free market", exchanges will probably increase, as will the movements of people and goods.

By monitoring this activity, CET is trying to ensure that the UK can take advantage of the opportunities that occur. To do this efficiently, the Council needs to be participating in new software developments, stimulating new ideas and assessing the educational potential of what becomes available. Changes in style and approach to the use of software will follow.

This is CET's remit. While the curriculum content and teacher training in schools is for others like MESU, the methods and mechanisms used by teachers and trainers are at the core of our work in development and evaluation.

The potential for education that the new technologies will offer is considerable, but we need to ensure that their development and assessment are as well funded as their incorporation into the school environment. If this does not happen, Britain will once again yield its ideas and inventiveness for others to exploit.

RICHARD FOTHERGILL

VISION SOFTWARE
TODAY'S TEACHING NEEDS VISION

In today's education, it is essential to have a vision of the future. Vision Software is the only software that can help you achieve this vision. It is the only software that can help you achieve this vision. It is the only software that can help you achieve this vision.

AVAILABLE FOR MAIL ORDER FROM
Amstrad 486, 64, 64 and 5128
BBC B, B4 and Master
Electron
Spectrum 48K, 128K
and other machines

FOR A FREE CATALOGUE
Simply complete this coupon and send it to:
Vision Software, FREEPOST, Station Colliers,
West Midlands B72 1BB. (No stamp required)

Please send my FREE catalogue of Vision Software

Name _____
Address _____
Post Code _____

Amstrad ☐ Subjects of Interest: _____
BBC ☐ Chemistry ☐ Physics ☐
Electron ☐ Biology ☐ Computer ☐
Spectrum ☐ History ☐ Robotics ☐
Others ☐ French ☐ Geography ☐
Information ☐ Games ☐
Proprietary ☐ _____

YB/10/87

PRIMARY

Blitz krieg

A bomb, a bulb and a buzz — micros across the curriculum

STEPHEN PEARSON



Over the last year or so, more teachers have been asking questions like "How do you integrate computers into the primary curriculum?" This suggests that they are looking beyond the semi-arid regions of drill and practice programs to content-free material and simulations.

As part of a project for the Microelectronics Education Support Unit, I have been involved in putting extra resources, both material and human into a group of schools to develop control technology. One of the schools selected in September 1986 was Caldwade Primary.

The school has a building dating from the last century, and a modern block incorporating a purpose-built, open-plan section. The classes involved in the project were based in the open-plan section. At the time of the project, the school had 215 pupils, five BBC Model B computers, all with disc drives, and one printer.

During the first term, I visited the school for half a day each week, and in the second term half a day every other week. The I.E.s provided us with Logotron Logo, Technical Logo and Robotix kits.

Over the year, children and teachers developed word-processing skills using Writer, databases using dBase and Inform, Logotron Logo, Control Logo, the Deltronics Control II Buffer Box, Milton Bradley's Robotix, and Technical Logo. These skills were then integrated into a literature-based curriculum.

Each term, the head teacher and the staff select a novel which forms a core of the term's language work. The novel for the second term was *Carrie's War* by Nina Bayden (Harcourt). The story revolves around two London children evacuated to Wales during the Second World War, and provides ample opportunities to forge links with curricular areas such as history, geography, music, art, science, language, and RE.

The first computer application used for the project was a database. The school admission book for the war revealed that London children were evacuated to this village, and that their names, parents' addresses, and local addresses were entered in red ink, along with their date of arrival. These records were transferred to disc, and pupils were able to find how many children were evacuated at different periods of the war, where they came from, what their parents' occupations were, etc.

Investigation of the evacuees led to the discovery that Cordelia Harris, the wartime billeting officer responsible for placing children with families in this part of Wales, was living nearby, now aged 92. A group of 14 children visited her and taped their interview. This really brought the evacuees' life to life for them.

A second database called *Blitz* was compiled with the assistance of a pack produced by the Archives Department at Swansea City Council, entitled *Air Raids on Swansea*. This contains photographs of air raid damage, a German town plan of Swansea, newspaper articles, accounts from people who lived through the blitz including a police officer, nursing auxiliary, and a highway engineer, and other material.

The *Blitz* database was compiled from statistical information about the air raids, such as the times of the alert and all clear, number and type of bombs dropped, and number and type of casualties.

Word processing was used extensively. Children created a book of poems with a war theme using *Writer*, recreated wartime newspaper stories based on their findings from the evacuee file, using *Front Page Extra*, and developed secret codes with *Tray*.

Then there was Logo, including control technology. Children's turtle graphics designs were related to the novel, and included a safety lamp, pit head winding gear, a swastika, and a tank.

The children were then required to use the materials they had acquired. A linear model was built down one side of the classroom, depicting Castle Bailey Street in Swansea city centre as it looked after the blitz in 1941, and a working model of the pit head winding gear was built out of dowl and card, and included a simple electrical circuit which turned on some lights. The

pithead model was based on the one in a local coal-mining museum which the class visited as part of the project.

The children were asked to use the model of the blitzed street to solve a problem relating to unexploded bombs. Using a large magnet fixed under the street for the unexploded bomb, they had to build a device which could move down the street, under computer control, and detect it. The solution involved the construction of a technical Lego buggy, and simple gearing. The device made use of a proximity switch to detect the unexploded bomb. A flashing light bulb and

a buzzer gave the warning, and at the same time the motor had to be stopped.

From the direct use of the computer on the project, a display of artefacts from the Forties was set up in the school foyer, and a group of children made a puppet theatre based around a set of popular war songs taught by the music teacher. Finally, a video tape was made towards the end of term depicting the final outcome of the project, and this was shown at a parents' evening.

The methods used in such a project provide an extremely effective learning environment. The children are likely to remember most of what they did. Coupled with the undoubted fact that they enjoyed themselves and gained insights into the exciting world of new technology, what more can one ask? Perhaps that this excellent ground work be exploited and built on in the secondary phase of education.

Stephen Pearson works for the Microelectronics Education Unit Wales. He was assisted in this project by the headteacher, Stuart Davies, and form teachers Pam Richards (US) and Roy Morris (US).

with almost all makes of computer. And they have the largest range in the country, don't you know?"

Hetherington's brow furrowed in thought. "Olympia. I'm sure I've heard the name."

"Course you have, you dunderhead. Olympia have been in schools for thirty years. That's almost as long as us," added Cuthbert gloomily.

Hetherington gazed admiringly at the keyboard's smooth, uncluttered design. "Must've cost millions!" he ejaculated.

"Don't be dense! Value for money is the main consideration here. These machines can take a jolly good hammering every day, just like you. Anyway, I'm sure old Mr Jessop would have learnt all about that at the free demonstration."

"I say, you're a clever chap, Cuthbert. How does one get to know so much?"

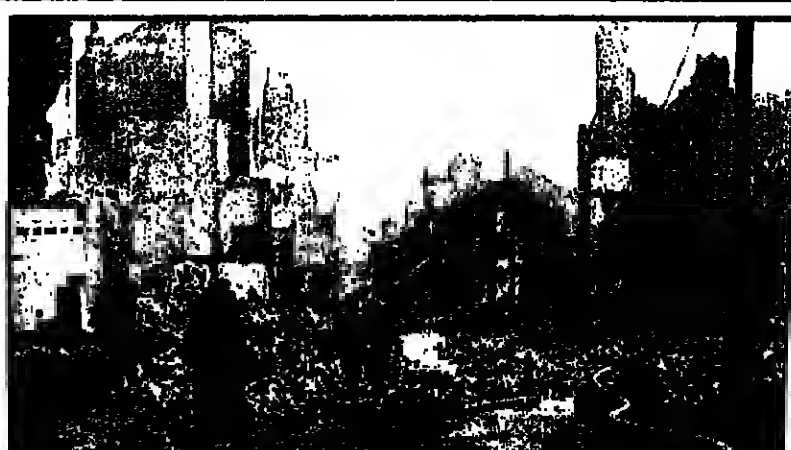
"Dashed easy, old bean. One simply fills in the coupon."

Cuthbert regarded him critically. "It's not a piano, you fat oaf, it's an Olympia electronic typewriter connected to the school's micro."

So sir had finally plumped for the Olympia, thought Cuthbert Mr Jessop had made a wise decision, and, judging by his demeanour these few weeks past, one with which he was more than satisfied.

"The schools what?" demanded a mystified Hetherington. His podgy fingers played clumsily over the keyboard.

"Micro," replied Cuthbert testily. "You see, the good thing about Olympia is that almost all their typewriters are compatible



with almost all makes of computer. And they have the largest range in the country, don't you know?"

Hetherington's brow furrowed in thought. "Olympia. I'm sure I've heard the name."

"Course you have, you dunderhead. Olympia have been in schools for thirty years. That's almost as long as us," added Cuthbert gloomily.

Hetherington gazed admiringly at the keyboard's smooth, uncluttered design. "Must've cost millions!" he ejaculated.

"Don't be dense! Value for money is the main consideration here. These machines can take a jolly good hammering every day, just like you. Anyway, I'm sure old Mr Jessop would have learnt all about that at the free demonstration."

"I say, you're a clever chap, Cuthbert. How does one get to know so much?"

"Dashed easy, old bean. One simply fills in the coupon."

Cuthbert regarded him critically. "It's not a piano, you fat oaf, it's an Olympia electronic typewriter connected to the school's micro."

So sir had finally plumped for the Olympia, thought Cuthbert Mr Jessop had made a wise decision, and, judging by his demeanour these few weeks past, one with which he was more than satisfied.

"The schools what?" demanded a mystified Hetherington. His podgy fingers played clumsily over the keyboard.

"Micro," replied Cuthbert testily. "You see, the good thing about Olympia is that almost all their typewriters are compatible

with almost all makes of computer. And they have the largest range in the country, don't you know?"

Hetherington's brow furrowed in thought. "Olympia. I'm sure I've heard the name."

"Course you have, you dunderhead. Olympia have been in schools for thirty years. That's almost as long as us," added Cuthbert gloomily.

Hetherington gazed admiringly at the keyboard's smooth, uncluttered design. "Must've cost millions!" he ejaculated.

"Don't be dense! Value for money is the main consideration here. These machines can take a jolly good hammering every day, just like you. Anyway, I'm sure old Mr Jessop would have learnt all about that at the free demonstration."

"I say, you're a clever chap, Cuthbert. How does one get to know so much?"

"Dashed easy, old bean. One simply fills in the coupon."

Cuthbert regarded him critically. "It's not a piano, you fat oaf, it's an Olympia electronic typewriter connected to the school's micro."

So sir had finally plumped for the Olympia, thought Cuthbert Mr Jessop had made a wise decision, and, judging by his demeanour these few weeks past, one with which he was more than satisfied.

"The schools what?" demanded a mystified Hetherington. His podgy fingers played clumsily over the keyboard.

"Micro," replied Cuthbert testily. "You see, the good thing about Olympia is that almost all their typewriters are compatible

with almost all makes of computer. And they have the largest range in the country, don't you know?"

Hetherington's brow furrowed in thought. "Olympia. I'm sure I've heard the name."

"Course you have, you dunderhead. Olympia have been in schools for thirty years. That's almost as long as us," added Cuthbert gloomily.

Hetherington gazed admiringly at the keyboard's smooth, uncluttered design. "Must've cost millions!" he ejaculated.

"Don't be dense! Value for money is the main consideration here. These machines can take a jolly good hammering every day, just like you. Anyway, I'm sure old Mr Jessop would have learnt all about that at the free demonstration."

"I say, you're a clever chap, Cuthbert. How does one get to know so much?"

"Dashed easy, old bean. One simply fills in the coupon."

Cuthbert regarded him critically. "It's not a piano, you fat oaf, it's an Olympia electronic typewriter connected to the school's micro."

So sir had finally plumped for the Olympia, thought Cuthbert Mr Jessop had made a wise decision, and, judging by his demeanour these few weeks past, one with which he was more than satisfied.

"The schools what?" demanded a mystified Hetherington. His podgy fingers played clumsily over the keyboard.

"Micro," replied Cuthbert testily. "You see, the good thing about Olympia is that almost all their typewriters are compatible

with almost all makes of computer. And they have the largest range in the country, don't you know?"

Hetherington's brow furrowed in thought. "Olympia. I'm sure I've heard the name."

"Course you have, you dunderhead. Olympia have been in schools for thirty years. That's almost as long as us," added Cuthbert gloomily.

Hetherington gazed admiringly at the keyboard's smooth, uncluttered design. "Must've cost millions!" he ejaculated.

"Don't be dense! Value for money is the main consideration here. These machines can take a jolly good hammering every day, just like you. Anyway, I'm sure old Mr Jessop would have learnt all about that at the free demonstration."

"I say, you're a clever chap, Cuthbert. How does one get to know so much?"

"Dashed easy, old bean. One simply fills in the coupon."

Cuthbert regarded him critically. "It's not a piano, you fat oaf, it's an Olympia electronic typewriter connected to the school's micro."

So sir had finally plumped for the Olympia, thought Cuthbert Mr Jessop had made a wise decision, and, judging by his demeanour these few weeks past, one with which he was more than satisfied.

"The schools what?" demanded a mystified Hetherington. His podgy fingers played clumsily over the keyboard.

"Micro," replied Cuthbert testily. "You see, the good thing about Olympia is that almost all their typewriters are compatible

with almost all makes of computer. And they have the largest range in the country, don't you know?"

Hetherington's brow furrowed in thought. "Olympia. I'm sure I've heard the name."

"Course you have, you dunderhead. Olympia have been in schools for thirty years. That's almost as long as us," added Cuthbert gloomily.

Hetherington gazed admiringly at the keyboard's smooth, uncluttered design. "Must've cost millions!" he ejaculated.

"Don't be dense! Value for money is the main consideration here. These machines can take a jolly good hammering every day, just like you. Anyway, I'm sure old Mr Jessop would have learnt all about that at the free demonstration."

"I say, you're a clever chap, Cuthbert. How does one get to know so much?"

"Dashed easy, old bean. One simply fills in the coupon."

Cuthbert regarded him critically. "It's not a piano, you fat oaf, it's an Olympia electronic typewriter connected to the school's micro."

So sir had finally plumped for the Olympia, thought Cuthbert Mr Jessop had made a wise decision, and, judging by his demeanour these few weeks past, one with which he was more than satisfied.

"The schools what?" demanded a mystified Hetherington. His podgy fingers played clumsily over the keyboard.

"Micro," replied Cuthbert testily. "You see, the good thing about Olympia is that almost all their typewriters are compatible

with almost all makes of computer. And they have the largest range in the country, don't you know?"

Hetherington's brow furrowed in thought. "Olympia. I'm sure I've heard the name."

"Course you have, you dunderhead. Olympia have been in schools for thirty years. That's almost as long as us," added Cuthbert gloomily.

Hetherington gazed admiringly at the keyboard's smooth, uncluttered design. "Must've cost millions!" he ejaculated.

"Don't be dense! Value for money is the main consideration here. These machines can take a jolly good hammering every day, just like you. Anyway, I'm sure old Mr Jessop would have learnt all about that at the free demonstration."

"I say, you're a clever chap, Cuthbert. How does one get to know so much?"

"Dashed easy, old bean. One simply fills in the coupon."

Cuthbert regarded him critically. "It's not a piano, you fat oaf, it's an Olympia electronic typewriter connected to the school's micro."

So sir had finally plumped for the Olympia, thought Cuthbert Mr Jessop had made a wise decision, and, judging by his demeanour these few weeks past, one with which he was more than satisfied.

"The schools what?" demanded a mystified Hetherington. His podgy fingers played clumsily over the keyboard.

"Micro," replied Cuthbert testily. "You see, the good thing about Olympia is that almost all their typewriters are compatible

with almost all makes of computer. And they have the largest range in the country, don't you know?"

Hetherington's brow furrowed in thought. "Olympia. I'm sure I've heard the name."

"Course you have, you dunderhead. Olympia have been in schools for thirty years. That's almost as long as us," added Cuthbert gloomily.

Hetherington gazed admiringly at the keyboard's smooth, uncluttered design. "Must've cost millions!" he ejaculated.

"Don't be dense! Value for money is the main consideration here. These machines can take a jolly good hammering every day, just like you. Anyway, I'm sure old Mr Jessop would have learnt all about that at the free demonstration."

"I say, you're a clever chap, Cuthbert. How does one get to know so much?"

"Dashed easy, old bean. One simply fills in the coupon."

Cuthbert regarded him critically. "It's not a piano, you fat oaf, it's an Olympia electronic typewriter connected to the school's micro."

It's the chickens, you see...

NIGEL ELLAM, JERRY WELLINGTON

"It's the chickens, you see."
"The chickens?"
"Yes... the children are hatching chickens just now and we are using the only suitable electric socket for the incubator."

The primary school where this conversation took place had not been using its computer for six weeks and the chickens were to blame. The school was just one of a random sample of schools studied in one large educational authority. Reasons such as this for not using microcomputers were commonplace. The general theme emerging from the study is that attempts to use hardware and software for the lack of widespread use of educational computing in schools are missing at least some of the point. It has become almost fashionable, and certainly obligatory at conferences, to pour scorn on the "poor state of educational software".

While some have complained about the software, others in the micro mafia have blamed the hardware: "Just wait until we get some decent X-bit machines in schools instead of these wretched XYZ things, then we can really do some educational computing."

Software and hardware may not be all that they should be in terms of quality, but this is not the major factor inhibiting the integration of educational computing into primary education.

The study involved taking a random sample of primary schools in one large educational authority and examining the use of computers in those schools. The random selection gave a total of 20 primary schools of varying size, catchment area, age and sex. The schools were studied by a mixture of observation and interviews with staff and

pupils. A pilot study was followed by the full-scale study over a number of weeks. The results are divided into three main categories which were considered to have the greatest effect on the use of computers in primary education.

Facilities

The first category affecting computer use was considered, not surprisingly, to involve the facilities and fabric of the school. This was divided into the number of computers compared to the number of pupils (which we termed "the computer access factor"); the accessibility of the machines (versus their security); and the provision of software. The so-called "computer access" factor varied enormously from one school to another, ranging from 60 pupils to a computer to no less than 276 (these figures may, of course, be considerably healthier now).

The access factor can of course give a false impression of microcomputer use by an individual child or class, for having a microcomputer in school does not necessarily guarantee that it is being used by all children or, in some cases, being used at all. Indeed, if the success or otherwise of the innovation was judged on the number of microcomputers in use on the day of the visit, then it would be deemed to have failed, for out of 28 computers in the schools only 13 were actually being used. Yet it could be expected that schools would have been making a "special effort" to use their computers on the day the researcher was due to visit them. Indeed, three schools did just that, teachers stating that they had put the computers on for the first time in several weeks. This was also evident from the air of excitement in the classroom and the comments of the children.

Excuses for not using computers varied enormously - a few typical examples are given below:

"It hasn't been out over recent weeks because in the summer term we're tied up with all sorts of other things and the eldest class have been busy working on a project..."

"Today isn't a good day to see them in action because there's one class scheduled to have it and, ah, they're away on their trip and, ah, I don't think the other two classes like to presume between them and... the nursery class... had forgotten that it was their week." (This school had two computers which hadn't been used that week up to Wednesday, the day of the visit.)

In the majority of schools studied an equally important factor restricting computer use was the sheer geography of the school, such as flights of steps between different parts of the buildings and/or separate buildings including temporary classrooms in playgrounds. Many teachers commented upon the restriction on computer use arising from problems with the building and the daily task of setting up equipment.

"It's the physical effort of getting it organized... we haven't got a trolley but it wouldn't be much help... and when we're working in two buildings, we really need two computers."

"We are two buildings although we work as one building. There are a lot of steps around the school so we have difficulty, we can't put a computer on a trolley and just push it. We can't move very far in any direction."

Attempts to overcome such real

physical difficulties sometimes resulted in disaster: "The caretaker carried it about for us and yesterday he dropped it. He was completely shattered." So was the computer.

Two problems relating to the facilities of primary schools were the provision of power points and the problem of balancing security with accessibility. In a number of schools the shortage or often the sheer inconvenience of power points restricted the use of computers. For example, in one school:

"...our rooms have only one power source and unfortunately that power source is always next to the blackboard and at the front of the room. Unless we trail terrible long wires around, it's the centre of attention near the front of the class."

Another seemingly small problem, but one that's very real for those working in schools, is security. Microcomputers, like videos, are often supposed to be locked away in a secure place when not in use, in order to satisfy the conditions of insurance policies. However, here lies the dilemma for many schools. If they are locked away in approved secure cupboards and stockrooms, microcomputers are less likely to be used.

One teacher explained that in his particular school to get the computer away from a secure stockroom every night would mean it would not be used because "the staff couldn't carry it over long distances and would therefore not use it". This appears to be a problem without any real solution.

One final issue relating to facilities, which is worth mentioning briefly here but has been the subject of numerous studies on computer education is the provision and use of software. Some of the schools observed were still using cassette tapes for storing programs and thus inevitably reported difficulties with loading and running which assume major importance in a busy classroom. Most schools have now acquired disc drives. But the fact remains that past experience of using tape fingers vividly in the memory of many teachers who may have been put off educational computing for life.

The range of programs available in schools varied enormously. Some schools still used the original MicroPrinter packs as their major source and little else had been acquired since their issue by the Microelectronics Education Programme. One reason given for the paucity of software, in addition to the obvious one of shortage of funds, was the problem of assessing, evaluating and selecting suitable software for their own use. Teachers felt that they had neither the time nor the expertise to evaluate and select programs. Those that did make it to perhaps a local teachers' centre still found software evaluation and selection a daunting task. Although there was abundant praise for the support given by the staff at teachers' centres there was also widespread criticism of the excess of programs provided and of their quality. In one case in the past software for viewing had been stored on C60 tapes:

"They had seven C60s, both sides crammed with software. It's worth having a look because there's some good stuff but it's a heck of a job because there's stuff up to A level science and whatever, I had to go through the whole lot and take out whatever I thought was appropriate."

Human involvement and attitude

The second main category of factors affecting computer use was, conveniently labelled, human involvement and attitude. This included the atti-

tudes of class and head teachers, in-service provision, external advice, perceptions of computers, enthusiasm, and the allocation of responsibility.

The influence of the head teacher was a major factor. One head was, at the time, so unhappy with microcomputer use or lack of it in his particular school that he had reluctantly decided to withdraw it from use temporarily. The reasons he gave for the apparent failure of computer use were loading problems, inappropriate or poor software, teachers' attitudes, a formal school organization and the difficulty of integrating computer work with other areas of the curriculum. The problems given by the head teacher were echoed and repeated by many of the others. Lack of time and lack of outside help and advice were other common problems.

Although many head teachers were unhappy about microcomputer use in their schools, only one head teacher was prepared to admit failure of the microcomputer even to the point of refusing finance for a further computer from parents:

"My parents' association are very good money misers and they're mad keen to buy us a second computer. I know they're working hard raising money for it. But we haven't really got the first one going yet... so I'd have to stall them."

Personal attitudes of heads varied widely. One freely admitted his own view of educational computing: "I'm not interested. If you can't teach five-year-olds without a computer, there's something wrong with you."

Other heads were acutely aware of the effects of class teachers' personal attitudes:

"It's like a lot of other things really. As the head I could take that computer into class X and say, 'Miss Y you've got to use this computer.' But I know at the end of the day, it wouldn't be worth it."

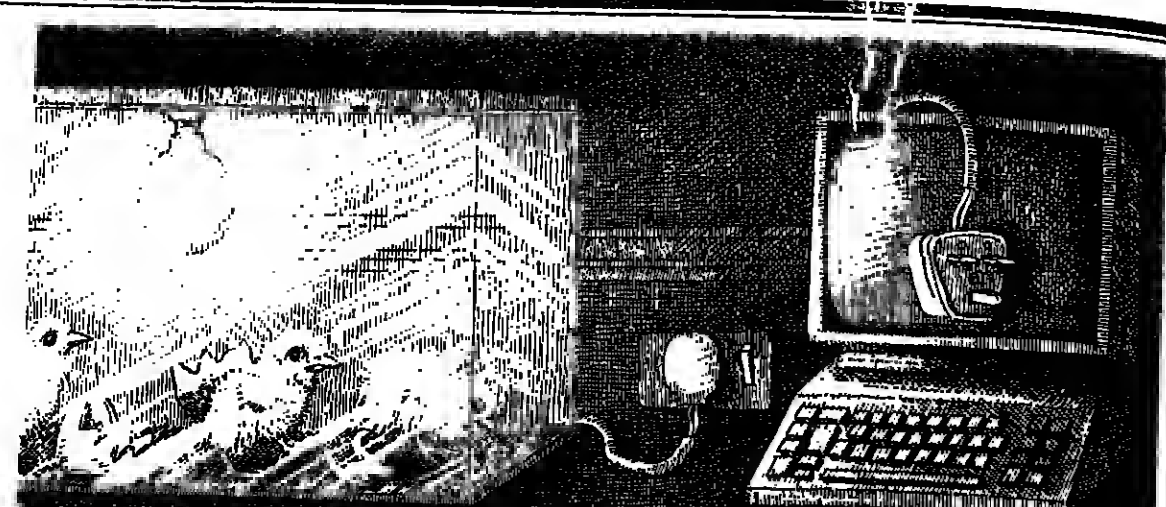
Many class teachers were conscious of their own trepidation towards computers and felt the need for more in-service provision of the right kind. Some were critical of the in-service training they had received in the early days of the launch of micros into schools. Courses were criticized for being either too technical or unrelated to existing classroom practice.

The presence of an "expert" or enthusiast on the staff had often helped overcome the gap in in-service provision, but this did create a problem of over-reliance on one teacher as the computer expert.

Of the schools visited, only five appeared to have an expert with such enthusiasm. Of those five, four were later assessed as using the computer in at least a satisfactory way. In at least seven schools the children were regarded by many of the staff as the experts: "Me and my friend, Jason, are the computer experts and we go round the school solving problems for different programs, when the teachers get stuck" (eight-year-old boy).

Only two schools were able to give paid responsibility to a teacher to act as computer consultant or co-ordinator. The detailed results of this study suggest that having somebody in charge of computers and the importance given to the post are indicators of the importance attached to them. Schools with someone in charge are more likely to have purchased additional computers, disc drives, concept keyboards and the like. Having an expert or someone in charge is also likely to promote better computer use because the software is more likely to be organized, catalogued and therefore more accessible.

continued on next page



RECOMMENDATIONS

How to encourage and foster better microcomputer use

The preceding summary has provided pointers to some of the main barriers to the spread and integration of educational computing into primary education as perceived by the teachers themselves. It is not suggested that the authoritatively studied in any way typified or that generalizations can be made from the study without caution.

At the end of the study it was felt that some schools were making good use of the micro and were moving towards a situation where it would be used in an imaginative, flexible and creative way. However, in spite of the favourable attitudes of some head teachers and teachers, for many the micro did not appear to have made any significant contribution of worth towards improving the quality of education on offer.

Rather than dwelling on the negative aspects affecting computer use in the primary curriculum, our aim in this final section is to suggest positive strategies for promoting good practice. We would therefore like to conclude by suggesting several recommendations likely to encourage and foster better microcomputer use. These are based on the factors and issues identified by the study, and as a result of the grassroots opinions of the teachers interviewed.

Some of the recommendations are aimed at head teachers and teachers, some at local authorities, some at the DES and DTI, and some at a combination of these. If these recommendations could be fully implemented, they might help to improve the "sorry state of affairs" discussed by Anita Straker (The TES May 9, 1986) in the light of Pauline Blatch's extensive study of computer use in primary education.

That sorry state of affairs was confirmed by our own study. The following positive recommendations are put forward:

1. Finance and support for the "roving consultant" (a kind of educational systems analyst) to help to integrate microcomputers into the primary curriculum, to help and advise on classroom management, software selection and evaluation.
2. A combination of appropriate and relevant in-service provision, particularly classroom-based, to:
3. The identification of and opportunities for teachers to observe successful microcomputer use and "good practice" at first hand.
4. Non-contact time for all primary teachers to take up these opportunities and to allow them time to integrate the computer successfully into their own classroom practices.
5. Within schools, the development of a policy for the integrated use of the microcomputer.
6. The appointment of a teacher in charge to take responsibility for the organization of hardware and software in the school.
7. In relation to software, there is a need for emphasis on quality not quantity. A small number of high-quality programs covering all aspects of computer assisted learning would suffice.
8. More concentration on the human factor in encouraging the integration of educational computing into primary practice.

These recommendations are all suggested as positive measures which could be taken to bring about the genuine transition and change in primary education which so far, despite large central funding, has failed to materialize in educational computing.

NIGEL ELLAM,
JERRY WELLINGTON

continued from previous page

Help, support and advice from an external source was welcomed by class teachers, especially if it occurred in their own classroom. One teacher compared the support needed in computing with the help given by a visiting dance consultant: "Dance is rather like computers. Teachers don't feel happy doing it, they're not confident. She would go in and work with a teacher with her class. She might take the class for two or three sessions and then she would feed the teacher in slowly and do it that way." A similar type of "roving consultant" for microcomputers would seem to be a most worthwhile idea.

Although the need for advice and guidance outlined above was strong, the majority of teachers perceived the computer as a valuable resource if properly used. It was seen as a motivator, a teaching aid and a way of enhancing "good primary practice":

"...a lot of good social development comes from using the computer... they'd all start as equals and if some children grasped the idea sooner than others, they didn't look down on them, they just encouraged them along... children grouping themselves round a computer, and sharing and interacting with the program, would be consistent with what I would say was good teaching and the philosophy of the school."

Organization and Management

The third and final category into which factors affecting computer use was grouped has been labelled organization and management. One aim of the study was to discover something about how different organizational and management strategies affected microcomputer use which in turn affected "good practice".

Of the schools visited, 16 had time-tabled the use of the computer, the time allocated for each class varying from half a day in some schools up to one whole week at a time in others. One school allocated a computer to a class for a whole term. Only one head teacher felt that allocation of this kind

was satisfactory: "Because we've got a limited number of computers and a lot of classes, we timetable it and in one sense it's positive reinforcement. When it's their turn to have the computer they feel 'right I must use it'. They have to use it, so in a way it promotes the use rather than if it was there all the time perhaps they wouldn't use it."

Perhaps such "positive reinforcement" is not necessarily the answer, for teachers may be forced into using it when at that particular moment they can find no worthwhile use for it.

In other schools timetabling did not even guarantee that it would be used: "We were timetabled for it, but perhaps the time when I was timetabled for it wasn't the time when I would really use it."

Once inside the classroom, what problems did teachers have in actually using it? What factors most affected classroom practice?

In many classrooms there is a conflict between the selection and use of programs and the individual needs of the children. The majority of the schools visited appeared to have an informal, child-centred approach. Yet few schools had reached the stage where the child-centred concept had been adapted with respect to the microcomputer. That is to say, very few schools or classes used programs in a flexible manner to meet the needs of individuals or small groups of children.

For many teachers, the selection of the program is influenced by the availability of software and the practicalities of finding rather than by the needs of the children. In the majority of schools and classrooms visited the method of organization was to select one program, usually one with a general appeal for the children in the class, to hand it out and then to let all the children use the same program. This

was the common practice in 12 of the schools visited.

Classroom management appears to have a greater influence on computer use than almost any other factor.

The further problem of integrating computer work with other classroom activity had yet to be tackled in most schools. Staff were often defensive when asked about integrating computer work into the curriculum. For many teachers and children, work on the computer is a separate activity. If integration is possible many feel that it will be in connection with mathematics. Some teachers had been able to integrate computer use into topic work but this was only possible in certain subjects, due to the restricted availability of software.

Many specific factors were observed in relation to classroom organization and management, but only the single most common one can be considered here. That factor was deemed by teachers to be the distracting influence of the computer.

This was seen by most classroom teachers to be a problem which added the task of integrating computer work more difficult. In seven schools the computer was used outside the classroom, in seven it was used inside, and in two it was used both inside and out, according to the attitudes of the teacher. This raises the question of whether the computer can really be integrated if it is outside the classroom.

The principal reason given for having it outside is to avoid the distraction problem, which with young children is initially a difficult one for many teachers to overcome:

"One thing we never got over with here is when somebody's on the computer... other children gravitate towards it and want to see what's going on."

Computers in the Primary Curriculum By Nigel Ellam and Jerry Wellington can be obtained for £2.75 (payable to "University of Sheffield") from the University's Division of Education.

Nigel Ellam is a deputy head teacher in a primary school. Jerry Wellington is a lecturer at the University of Sheffield.

Last year, 5,190 academics had no trouble getting published.

TECHNOTE

IMAGE: the QMC graph-plotting program

Apple Desktop Publishing (ADP) is the most powerful and versatile desktop publishing system available. It allows you to create professional-quality documents, including newsletters, brochures, and reports, with ease and speed. ADP's powerful typesetting and layout capabilities, combined with its extensive library of fonts and graphics, make it the ideal choice for anyone who needs to produce high-quality printed materials. The introduction of Apple Desktop Publishing in 1985 was an event of more than mere academic interest. Thousands of professors, lecturers, researchers, and administrators have already embraced our concept of personal publishing on Apple Macintosh and LaserWriter.

The introduction of Apple Desktop Publishing in 1985 was an event of more than mere academic interest. Thousands of professors, lecturers, researchers and administrators have already embraced our concept of personal publishing on Apple Macintosh and LaserWriter.

So, even as this advertisement goes to press, they too are being published. The versatility of the Macintosh enables them to make their dissertations more illuminating, course outlines more instructive, and grant proposals more likely to be granted.

The immense variety of type fonts, styles and sizes available to Macintosh users gives anything printed the authority of virtually typeset quality without the expense of setting type. Macintosh has by far the largest and most innovative base of publishing and graphics software. Macintosh also provides greater flexibility, saving on time and other expenses too. The AppleLink network and PostScript (the industry

standard page description language) are built into every Macintosh and LaserWriter, allowing up to 31 Macintosh computers to connect to and share one printer. The Macintosh SE, when equipped with its 20 megabyte internal hard disk, can access more information with more speed. It's also expandable, enabling you to enhance the system with page-sized

screen displays like Radius PFD and MegaScreen. We are so confident of the quality of Apple Desktop Publishing, that we invite you to take up the Apple Challenge. Just send us a page from one of your documents and we will re-do it on an Apple Desktop Publishing System. It will then become clear why so many academics publish under the Apple imprint.

Dermatophytes - appearances in culture

Microscopic views of various biological specimens, including what appear to be plant cells and microorganisms, arranged in a grid-like fashion.

Please send me more information on Apple Desktop Publishing. I also enclose a page from one of my documents for you to re-do it free of charge. Put to: Apple Computer UK Limited, FREEPOST, Information Centre, Eastman Way, Hemel Hempstead, Herts. HP24 6ER or dial 100 and ask for FreePost Apple.

NAME _____

POSITION _____

DEPARTMENT _____

EXTENSION _____

ADDRESS _____

PHONE _____

Apple
The power to succeed.

HELP YOUR STUDENTS TO FEEL REALLY CONFIDENT WITH INFORMATION TECHNOLOGY AND THE WAY IT IS USED

Information Technology is used in almost every type of work. It's something your students really need to learn while they are at school. Practical activities are the vital key to understanding Information Technology, and yet many courses do not provide the necessary realistic 'hands-on' experience.

Now there is a new course that is really practical. Do IT! by Peter Bishop teaches your students to deal with information just as it is handled in commerce and industry. Activities using the computer in a realistic way plus case studies and ideas for 'hands on' work too, makes Do IT! an ideal course for students at all levels whether they are studying for a specific exam or following a familiarisation course.

Send for your inspection copy now!

☐ Please send me an inspection copy of Do IT! by Peter Bishop 0-17-448137-3 £3.95

☐ Please send me an approval copy of Do IT! Teacher's Guide 0-17-448138-1 £2.95

Name _____

School _____

Address _____

Postcode _____ LEA

Return to: UK Publicity Dept., Thomas Nelson & Sons Ltd, FREEPOST, Nelson House, Mayfield Road, Walton-on-Thames, KT12 4BR

Curriculum and examination developments

Internal workings

PAUL McGEE

In the last Computer Extra (June 19) John Hammond and Roger Edmondson put opposing points of view about computer studies and information technology as GCSE subjects. Given the absence of any mention of either in the 14-16 Curriculum of Mr Baker's proposed national curriculum, they might win a battle to lose the war.

The major problems in the current conflict seem to stem from misunderstandings about the nature of computer studies.

The fundamental point is that the major emphasis in computer studies syllabuses should be given to the use of a computer as an information-processing device and the ability to use a computer sensibly, and very little if any to a knowledge of the internal workings of the machine. Similarly, the emphasis is on problem solving using computers rather than on programming.

Problem solving entails the choice of appropriate hardware and software to meet the needs of a particular problem. It is therefore essential that candidates have sufficient grounding in practical skills to ensure that they understand enough to make appropriate choices. An indication of the software resources that are to be assumed is given in the SEC/Open University Teachers' Guide which formed the basis for training teachers for GCSE computer studies. The Teachers' Guide recommended the following software packages: word processing, spreadsheets, information retrieval/file management systems, databases, Viewdata/teletext, graphics, program generators (eg *The Last One*), and appropriate home software.

In fact the whole approach of the Teachers' Guide assumes that teachers of computer studies are competent to use such generic packages, and a similar assumption should be made for computer studies students. Even where the school decides to give an emphasis to programming, this is not to be interpreted narrowly as writing in a traditional high level language such as Basic, but includes such things as writing instructions to drive a database, the implementation of a Logo microworld, or the use of pre-written routines.

There is a major difference between coding in a programming language and problem solving. The GCSE computer studies objective is that candidates have to use computers sensibly to produce solutions to appropriate problems and be able to document their solutions. There are certainly many teachers, and students who feel, for example, that there is more merit in writing a program that creates, maintains and interrogates a file than in using a database package to do so, and mistakenly believe that candidates

who use a package are restricted to the lower grades.

Many sophisticated database packages, such as *dBASE* or *Datamaster*, allow as much control of the computer as commonly-used versions of Basic. It should also be remembered that the Basic interpreter/compiler and the operating system are pre-written software, and that what the candidates can do is limited, or facilitated, by the systems software.

For a syllabus to offer the full range of grades it is essential that it gives opportunities for the exercising of reasoning and judgement. The SEC Computer Studies Committee has been critical of syllabuses which are largely skills-based. Computer studies syllabuses have to be assessed reliably, while ensuring that candidates are awarded grades only for positive performance on a coherent set of knowledge and skills, rather than for an inconsistent collection of marks.

Some schemes seem to be little more than a set of core skills in simple machine use, for instance, the use of a database, word processor, spreadsheet and a graphics package. This has obvious attractions for the busy teacher, but it is not immediately clear that it complies fully with the assessment objectives of GCSE computer studies. It is important to understand that grades above F or G could be obtained only by attempting a reasonable part of the complete process of using a computer to solve a problem, while the highest grades should be reserved for reasoning judgement and persistence in the creative application of information processing technology to problems.

Candidates need to be guided towards problems that are sufficiently demanding intellectually to allow them to demonstrate the full range of problem-solving skills of which they are capable. For the higher grades, therefore, it is essential for candidates to demonstrate an ability to meet the full range of objectives under Assessment Objective B of the national criteria for computer studies, ie the candidate should be able to:

- derive the information requirements for the solution of a problem in terms of the output needed, the input data and any necessary files;
- encode data and information for processing on a computer;
- select suitable methods of communication between people and the computer;
- formulate and test algorithms; use a computer to implement the algorithm satisfactorily;
- document their work using appropriate methods of communication.

Most problems which are appropriate for GCSE computer studies have acceptable solutions which do not involve programming in a traditional high level language, as shown by the following examples:

- The implementation of Logo microworlds, eg an adventure.
- The setting up of a data file for subsequent interrogation using a file management package.
- The use of a word processor and an information-retrieval package to produce a revision guide for a subject giving references to particular topics and stating which are key references and which are minor or related references.

- The use of word-processing and graphics packages to help a teacher to prepare a series of student worksheets which involve diagrams as well as text.
- The design and setting up of a word data magazine on a local area network.
- The design of a spreadsheet model for a holiday budget; a comparison table (eg as in *Which?*); a tabulation of statistical calculations.

- The use of a spreadsheet and word processor to produce a management report.
- The use of home computer programs which claim to help people to do tedious domestic tasks, with adult friends or relatives who know little about computers, to carry out tasks which are important to them.

There is also confusion about what technical knowledge is covered by computer studies. A computer system is any system based on the use of a microelectronic device for information processing and the term computer is to be interpreted as covering any microelectronic device so used. In the same way, when the national criteria say that candidates should be able to explain the functions of the component parts of a computer configuration, the knowledge and understanding should be being able to make informed choices of both hardware and software and being aware of their relevance to different applications. An understanding of the internal workings of components is not necessary.

The above points should provide some help in clarifying the nature and purpose of computer studies, pending a review of the national criteria. Let us hope that this review can happen soon enough to influence thinking on the national curriculum. If it does not, then a significant contribution to today's and more importantly, tomorrow's education will have been lost.

Paul McGee is chief inspector for computers in Croydon.

JOHN HAMMOND

Advanced Level computing is in a period of exciting development. After lengthy discussion and wide consultation the GCE examining boards have recently agreed a common core in computing at Advanced Level, based on a draft document produced with the support of the Secondary Examinations Council. In addition, all of the boards either have relatively new syllabuses broadly in line with the common core, or are producing them now.

One particular syllabus, recently published and for first examination in 1989, is worthy of special note. It is the syllabus for no fewer than four of the nine UK examining boards - the University of Cambridge Local Examinations Syndicate (UCLES), the Oxford and Cambridge Schools Examination Board (O & C), the Southern Universities' Joint Board (SUJB) and the Welsh Joint Education Committee (WJEC).

This is perhaps slightly less dramatic than it sounds, because the first three have for several years shared a number of syllabuses through a loose consortium arrangement known as the Cambridge, Oxford and Southern School Examinations Council (COSSEC). However, the new computing syllabus has been produced as a collaborative development between the COSSEC boards and the WJEC, and it replaces the previous separate syllabuses in computer science. The desire to collaborate arose from a common view of future needs.

The new syllabus was completed in little over a year, including full consultation with schools, colleges and other bodies and formal approval by both boards' subject committees and the SEC. Two sentences from the notes introducing it are worth quoting:

"The collaboration between the WJEC and COSSEC includes the shared syllabus together with the supporting material; it may on occasion, if the boards so wish, extend to shared examination questions or to shared written papers. A vital aspect of this collaboration between COSSEC and the WJEC is that it is by mutual agreement and that each board retains complete autonomy, with the right to withdraw and pursue its own course at any time if it feels that is more appropriate."

The new syllabus has the title "computing". In accordance with the recommendation of the common core, previously, the titles computer science, computing science and computer studies have been used by different boards to describe syllabuses covering broadly the same area, but the expectation is that "computing" will be adopted by all the boards in future.

The aims of the syllabus, objectives of the examination and organization of the content are also in accordance with the common core, though necessarily much more fully described. To quote from the preamble:

"The intention of the syllabus is that the student should gain an understanding of first, the use and impact of computer systems in a wide range of information processing applications, second, the principles involved in the development of a computer system for a particular application, and, third, the underlying mechanisms and methods which allow a computer system to perform the required tasks effectively."

The practical nature of computing is emphasized by the project, for which the intention is that the student tackles a substantial and worthwhile piece of work and carries it through to a successful conclusion. It receives one third of the examination marks.

The organization of the syllabus content into sections and the organization of each individual section and topic area reflect a top-down view of the subject - "a study of the applications of computers and the effects of their use is supported by a study of the processes, methods and mechanisms which underlie such applications".

The sections of the syllabus content

their social and economic implications

1. Systems analysis and design
 2. Problem formulation and solution
 3. Structure and representation of data
 4. Algorithm design and programming concepts
 5. System software and architecture
- The reasoning behind these headings and their order is explained:
- "When an application is proposed it must first be analysed to establish the desired outcome and the information requirements. This is followed by the design of a suitable overall system. The parts of the system and the interactions between the parts then need to be specified in detail and an appropriate form of solution selected for each of these parts. In order to implement the solution effectively, suitable data organizations, algorithms, software and hardware components need to be chosen and appropriate tools and techniques used. Some understanding of the underlying system software and architecture assists in the sensible and efficient use of resources in the implementation of solutions."

The study of computer applications provides both a reason for studying computing and a context in which the other topics have a sensible place and a clear purpose. The general study of applications is reinforced by prescribed case study material, available throughout the course, and the examination "will include questions which relate directly or indirectly to this case study material."

For the first year of examination the case study material covers two applications, the management of a dairy herd using a microcomputer based at the farm, and electronic mail systems with particular reference to British Telecom Child. Further case study material is in preparation, including the computerization of the Oxford English Dictionary and the development of the Swansen DVLC system.

Apart from the overall aims and objectives, which are general and relate to the subject as a whole, there are content-related aims for each section and objectives for each sub-section. These, together with the detailed content and copious notes on each content topic, provide extremely clear guidance on what is required of candidates.

The information on what is expected from the project and the guidance on how it is to be assessed are also very full. The supporting material includes specimen papers, with marking guidelines which are almost like a test book.

The syllabus states, quite properly, that "it is not the role of an examination syllabus to lay down how a course is to be organized". It continues, "however, a suggestion of a possible course structure may be helpful."

Because it illustrates the overall philosophy of the syllabus, an applications-driven, top-down approach to the subject, this guidance is included here:

"It is anticipated that a successful course based on this syllabus could start with a study of a simple application, including topics from throughout the syllabus which relate to that application, and that this pattern could be repeated with applications from a variety of areas and of increasing sophistication. The applications would include those in the prescribed case-study material in addition to other applications, some specific and others of a more general kind."

Within this overall structure there would need to be some periods where particular topics in the syllabus were studied in more detail, but as far as possible any topics would be studied in the context of their application. In parallel with these studies there would be practical work, designed to build upon and illustrate the applications and topics being studied, and this would lead into the major practical component, the project."

Copies of the syllabus and supporting material can be obtained from Roy Cook, WJEC, 245 Western Avenue, Cardiff CF5 2YK, or from Michael Farthing, UCLES, 1 Hills Road, Cambridge CB1 2EU.

Teachers Talking

Eight months after the commencement of development work on the DTI funded NERIS database of curriculum materials and information, teachers and librarians became actively involved in testing and evaluating the system. In November 1986 colleagues from 14 LEAs related the on-line enquiry service for inexperienced users.

During these trials and before the final form of the system had been agreed, four schools in North Yorkshire undertook the task of producing a document raising issues relating to the management of NERIS in secondary schools. They were assisted by an Advisory Teacher from the Information Technology Centre of Grantley Hall and a senior lecturer from the College of Ripon and York St. John.

The outcome of their work is published by the NATIONAL EDUCATIONAL RESOURCES INFORMATION SERVICE (NERIS) as a booklet entitled *Partners for Learning*. It is the first of what is hoped will be a series produced by NERIS in co-operation with LEAs.

THE FOLLOWING EXTRACTS REFLECT SOME OF THE INITIAL VIEWS OF COLLEAGUES IN SCHOOLS WHO WRITE ENCOUNTERING THE CONCEPT OF NERIS FOR THE FIRST TIME.

Access to Infinity

One of the great benefits of the information technology revolution is that it is now much easier for us all to have a better idea about what there is to know. Topics way beyond the experience of previous generations are brought to our attention and the means to acquire incredibly detailed knowledge about any topic is readily accessible to us.

PRESTEL and TINS have been available for long enough for many people to know about them and their potential. The latest addition to the range is a specifically school focused educational database called NERIS.

NERIS is aiming to provide easy access to a very wide range of curriculum materials. One local telephone call routed through the school computer and a whole universe of content is opened to the teacher.

Because not every teacher is a whizz on the computer the NERIS team are making it ultra "user-friendly". Time will tell whether the



PARTNERS FOR LEARNING

main users will be teachers themselves or school librarians acting on teachers' behalf or, indeed, pupils themselves going straight to resources.

Where and how does NERIS fit in?

Not Only Books

... 500 new ones (books) are published every week in Britain and then there are all the other printed materials in newspapers, journals and pamphlets. Apparently ten thousand separate now published on the single topic of education appear each week throughout the world. In addition to all this we now have video, audio and video tapes, in slides, photographs and filmstrips, to computer tapes, floppy disks and on-line databases, and we must not forget places to visit and people to go to.

What are my students' learning needs?

Information

Pay-off for Pupils

Though most of their lives will be lived in the 21st Century will seem an eternity away for most pupils at school today. But the information technology revolution can have much more immediate value for them. Because their teachers can select illustrative material from an almost infinite resource bank each individual pupil's interests can be catered for. We have long been told that this is the key to motivating pupils to work. Moreover the immediate access can be a valuable stimulus to further work - gone is the agony of waiting for poor Tommy to get a reply to his laboriously written letter to the Lilliputian Embassy two weeks after the others have started their projects.

Can this be presented to a particular group?

Which resources shall I choose? Have I time to look at everything?

Where can I find the resources I need?

Information Explosion and the Curriculum

What is the information explosion? Information of all kinds on all manner of subjects has been around for some time but now it has all become amazingly accessible. What once took decades of painstaking study can be summed onto a screen by the touch of a couple of buttons. Technology has opened to us all a veritable Aladdin's cave of factual knowledge; our problem now is to devise strategies for handling this information in ways which will be most beneficial to us and the generations to come.

NERIS in the Curriculum

What has been needed for years has been a national agency aimed at the learning needs of pupils, an agency which could act both as a disseminator and a repository for quality materials in all areas of the curriculum and for all phases of the education service. It would be our hope that in NERIS this agency has at last arrived.

...and Comments

A vast database of teaching materials and resources, constantly being expanded and edited, is what NERIS will become.

Sensitive and intelligent use of the NERIS resource by teachers should enable them to provide proper professional support for pupils' learning needs.

NERIS is not a gimmick. Nor is it a system which depends for its success on high levels of computer cleverness among those who operate it.

NERIS is more than simply a resource. It is a medium through which teachers can support one another.

We hope that teachers and other professionals in education will take NERIS to their hearts and influence its development, growth and understanding of need. The initial funding must run out. By the time it does NERIS must have justified its existence to its users and the information providers. Those partnerships, crucial to the continuing existence of NERIS are based on trust and have only one purpose - the learning needs of pupils.

The NERIS development team wishes to express its thanks to the N. Yorkshire LEAs and to those colleagues who contributed to *Partners for Learning*.

Since this exercise in co-operation many more colleagues have had the opportunity to use and evaluate NERIS for themselves via TINS and PRESTEL. After a mere five months operation over 20,000 enquiries have been handled by the database.

To widen the opportunity for schools and LEAs to judge NERIS for themselves, the DTI has funded a form of access that does not require subscriptions. It uses a now British Telecom network service and is currently being demonstrated to representatives of LEAs throughout the UK. By the end of the Autumn Term 1987 all LEAs including those in Scotland and Northern Ireland will have been offered the opportunity to obtain free passwords to enable their schools to access NERIS for the cost of a local telephone call for a trial period.

Partners for Learning

... may be obtained from NERIS at £1.00 incl. p&p. Money should be sent with orders to NERIS Publications Unit, Maryland College, Leighton Street, Woburn MK17 9JD.

SHERSTON SOFTWARE presents

Two new programs for infant and junior schools available November 87

28 days free approval. Special low introductory prices until 31/12/87.

THE FARM - A topic-based package for middle infants. The follow up to our very popular 'Circus' farm. The package is fully adjustable from the teacher control menu and comes with a comprehensive Teacher's Booklet. A must for any infant topic on the farm.

Introductory offer price £13.50 + VAT
Price after 31/12/87 £15 + VAT

THE NATURE PARK ADVENTURE Conservation, nature, maths and language in an adventure for lower juniors.

Featuring Simon Foster's superb graphics, 'The Nature Park Adventure' has enough scope to provide weeks of work in the classroom. The package comes on two 'floppies', and includes a full-colour children's booklet, topic cards, activity cards and a teacher's booklet full of ideas.

Introductory offer price £16 + VAT
Price after 31/12/87 £17.50 + VAT

Our complete range of programs for infant, junior and secondary schools are also available on approval, including:

Typesetter

Our very popular Desk Top Publishing package for schools that really is easy enough for everyone to use. Network version available November.

BBC B+ and MS128 £27.50 + VAT
Network: £60 + VAT

Requests for approval, Official Orders and enquiries to: Sherston Software, Swan Barton, Sherston, Marlborough, Wiltshire SN16 0JH. Tel: 06453 87 00. Fax: 06453 87 00.

Sherston Software have produced a remarkable 100 top quality, simple but powerful and a bargain at £25 Educational Computing April 1987

SPECIAL NEEDS

THE STARTING POINT FOR A ZOO PROJECT

PLAN A ZOO VISIT

RESEARCH ANIMAL FACTS

FIND A LOST CHILD

RESCUE THE ANIMALS

FIND OUT ABOUT ZOOS

FEED THE ANIMALS

SOLVE PROBLEMS

ZOOPAK

Contains 5 programs, a comprehensive software manual, audio cassettes, an illustrated story, zoo info, concept keyboard overlays, disc labels and lots of suggestions and ideas to get you started on your zoo project. For primary and older children.

BBC B/B/Master Compact £21.00 + VAT. This version only.

AMATION

©Amation Educational Resources, Linden Lea, Rock Park, Barnsley, South Yorkshire S10 3BAQ Tel 01227 45888

PORTASTOR

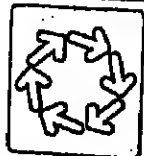
HIGH SECURITY PRODUCTS

High Security Storage and Workstations for Schools and Colleges.



Contact: Neil Williams on 0304 24872 or write to PORTASTOR High Security Products (426) PORTASLO LTD, HUNTINGTON, YORK, ENGLAND YO3 9PR

LOCK IT UP - LEAVE IT SAFE



New content-free software from Garland Computing

Q-CAL

Flexible creation and presentation of questions and answers

Easy design of CAL packages with multiple choice, multiple completion, free format words or phrases and numerical answers - self-contained or in conjunction with worksheets

Unique spelling and numerical checking facilities - allowance for small errors can be specified. Any answers not recognised are corrected and saved to disc for subsequent checking by the teacher

For students working individually or in groups away from the computer - computer acts as class "manager". Password-protected teacher menus

Availability - BBC Model B/B+/Master £37.50; RM Nimbus (with BBC-BASIC)/Archimedes/Master Compact £39.50 (+VAT)

Full details from -

Garland Computing, 35 Dean Hill, Plymouth PL9 9AF
Tel 0752 401287

Fifteen-year-old Nicky is a pretty, blue-eyed cerebral palsy child who up until recently had virtually no means of communicating. Now, using a switch which she presses with a movement of her arm, she can make pictures appear on a computer screen. It doesn't sound much but those who have seen her reactions to the computer know that it represents a huge difference in the quality of her life.

In a London comprehensive school a group of teenagers were failing miserably in writing - for some it was a struggle to produce 10 words linked together. Recently the introduction of word processors and desktop publishing not only reduced truanting substantially but resulted in a collaborative project to produce a booklet about a famous athlete who lived in their neighbourhood.

In many mainstream schools visually-handicapped children are able to participate fully in lessons using a Vincent Workstation comprising a Braille, a voice synthesizer and a printer. They can Braille in text, read text from the Braille, check the work using the voice synthesizer and print out work for the teacher.

These diverse examples are taken from one education sector, special needs, and they illustrate the fundamental importance of microtechnology in the area. Special needs, it is now acknowledged, is one field where the benefits of computers shine out: where success in terms of improvement in skills and knowledge and most of all in quality of life has been measured again and again.

Unfortunately, however, just when the importance and potential of the technology in this area is well recognized, the administrative structure which underpins its application is being dismantled.

The main pillars of this structure are currently the four Special Education Microelectronics Resource Centres (SEMERCs) situated in Redbridge in London, Bristol, Manchester and Newcastle. These centres provide advice and information on the use of microelectronics with special needs children. They offer facilities for viewing software and hardware, initiate research, publish bulletins and provide feedback to software producers and hardware manufacturers. They have also disseminated ideas and information on good practice and innovations and, probably most importantly, run huge numbers of courses on every aspect of information technology in special needs.

Providing support in other ways is the ACE centre for Aids to Communication in Education in Oxford (another was recently set up in Oldham). Here aids for the severely handicapped are demonstrated, advice given and courses organized. Then there is the Software Development Unit in Manchester. These, together with the SEMERCs, offer a focus where knowledge can be collected on an enormous variety of needs.

As more I.e.s.s. appoint coordinators of micro in special needs, this function has become particularly relevant. Coordinators find themselves faced with a vast and diverse range of problems: queries come from institutions ranging from nursery school up to FE colleges; about children and adults of all ages with disabilities and learning difficulties of all types. The expertise of the SEMERCs, ACE centres and Software Development Unit is invaluable: "We'd be useless without them," commented one coordinator.

During the last five years the SEMERCs, ACE and the Software Development Unit, were funded at first through the Microelectronics Education Programme (MEP) and then through the Microelectronics Education Support Unit (MESU).

In 1986 MEP was dismantled and I.e.s.s. were primed to assume full responsibility for its functions. MESU, with a budget of just over £3 million was to provide some central coordination and support for I.e.s.s. and to continue supporting the SEMERCs, the ACE centre and the software development unit. When their responsibilities also would be turned over to the I.e.s.s.

The reasons given for the special needs extension were vague. But whatever the reasons, the response was warmly welcomed.

That warmth, however, has now diminished: MESU's commitment to special needs is being questioned and morale within the computers in special needs area is low.

Earlier this year Mary Hope, who had established the successful, and



Particles of need

CAROLYN O'GRADY

ture under MEP and fought for its continuance under MESU, resigned. Her successor, Peter Fowler, who is currently running a project on the role of information technology in FE special needs courses, has been appointed but is unable to take up his post until January 1 1988, which adds to the feeling of hiatus.

Most people in the field are resigned to the almost certain demise of the SEMERCs - it is thought likely that ACE and the Software Development Unit will survive. They would like to see smaller regional SEMERCs created in place of the present four forming the centre layer of a three-tiered system at the top of which was a national coordinator and an information service. The coordinators of micro in special needs, of which there would be one in each I.e.s.s., would form the I.e.s.s. tier.

This system would go some way to counteract what Mary Hope describes as the lack of "critical mass" in special needs. The problem is graphically

'MESU's commitment to special needs is being questioned and morale within the computers in special needs area is low'

illustrated by a quote from one coordinator, talking about services for the deaf within his I.e.s.s.: "To get a credible service for the deaf in this area, we would have to deafen another 100 children."

The fact is, says Mary Hope, "that the particles of need are too scattered and differentiated to be dealt with at local level. Without regional and national tiers, certain kinds of need are sure to fall through the net".

Taking a very broad canvas the situation doesn't look that grim. Though there is some confusion over how much of its budget MESU will be prepared to dedicate to special needs after March 1989 - at present just over £200,000 goes to finance the SEMERCs, ACE and the Software Development Unit - a government spokesman said that he did not anticipate that MESU funding would be affected by the closing of the SEMERCs. And John Foster, MESU director, said that the unit "would continue to give special needs the same percentage of the budget".

Those who advocate a three-tiered system suggest that if this money were available, MESU might at some point I.e.s.s. who set up regional SEMERCs, as well as strengthening a central national information service. Other suggestions include an annual national conference, which would bring the scattered advocates of micro in special needs together.

Also giving grounds for optimism is the fact that the government's commitment to educational computing in general is being maintained. There is in theory nothing to stop I.e.s.s. directing all the education support grant money towards special needs.

But in practice, it is beginning to be felt that

which case, as Peter Fowler points out, "we could have an elaborate network of mini-SEMERCs".

However, a look at the timing and what is being done in the time available, suggests that this scenario is unrealistic. Although some areas already have many full-time coordinators of special needs in permanent posts and are engaged in formulating plans for regional SEMERCs, others have very few coordinators at all and have no plans.

At the beginning of July MESU distributed a consultative document entitled *Microelectronics for Learners with Special Educational Needs* to every local authority in England, Wales and Northern Ireland. The document poses such questions as how can I.e.s.s. best move to a position in which they are able to carry out the SEMERC functions after 1989? Can they provide all of them individually or is there some merit in combining to finance certain functions on a regional basis? And what kinds of support are needed from MESU after 1989?

The deadline for replies is October 31 - the end of this month - and MESU's present stance is that they can do little until they have the response to this document. "We will get into a more directive role then," said Ralph Tishberger, MESU's deputy director. Which is all very well, except that the DES deadline for a general outline of submissions for ESQ grants was October 1 and a statement of the authorities' development policy over the coming five years must arrive by December 31.

This gives MESU very little time indeed to adopt a prescriptive role. A large responsibility is about to land in I.e.s.s. laps, which could well be met at least partially from the new money. But without MESU encouragement, it looks unlikely that many authorities will have got together to form special needs consortiums which might set up regional SEMERCs for the area. Neither will they have had time to instigate a debate on how computers may play a part within a comprehensive support service for special needs.

One authority which has already established its own computers in special needs centre, with software and hardware on loan and the resources for publishing a newsletter, is Harrogate, and the experience of its director, Robin Best, strongly illustrates the enormous need for information.

During the last year 80 different institutions have contacted Best. Some of these "clients" have been in the health and social services, but Best is now turning them away. As a one-man operation he can hardly cope with the enquiries from educational institutions. He uses the Redbridge SEMERC as a "coping" device. "I couldn't have coped at all without the expertise of the SEMERCs. The demand has been overwhelming," he says.

"Most people think of special needs as physical disability, but enquiries I get are about children with learning difficulties and the enquiries cover every age range from nursery to FE". His words are echoed by the micro in special needs coordinators. Many of them emphasize that it is only now that demand from the mainstream schools with special needs children in their classrooms is beginning to be felt.

MANAGEMENT

Business-like

CLARE MACLURE

The government's proposal to introduce local financial management in the education service will increase the administrative duties of head teachers and create a demand for computerization in schools.

If financial delegation becomes law, control of school budgets will be transferred from local education authorities to head teachers and governors. Micros will become a necessity for administration in schools, and to ensure the free exchange of information, the school systems will have to be linked to central authority mainframes.

Much has been heard over the years about the value of micros in schools but teaching and learning but the role of computers for administration in education has been largely ignored.

The signs are that education authorities are now turning to this neglected area, and the Government's planned reforms of education will speed up the process.

At present the adoption of computer-aided administration in schools is for the most part patchy and uncoordinated. It tends to have grown up in the ad hoc school through the enthusiasm of individual teachers or heads. Micros freed from educational duties are used with software which has not been specifically designed with schools' administrative needs in mind.

There are dangers involved with this kind of approach. Jack Harrison of Suffolk County Council advocates a centrally-organized policy. "If each school is left to do its own thing you end up with a fragile system, which has not been documented, and when the computer expert leaves you are left with no way to work it," he says.

Jack Harrison is senior research coordinator at Suffolk's Schools Management and Administration by Computer (SMAC) project. The SMAC system has been developed over the last two years by the Council and Hytech Microsystems of Oxford, and is being introduced into the region's 39 secondary schools.

Peter Watts, a consultant for the Inner London Education Authority

(ILEA) and a former headmaster estimates that only a dozen of the 104 education authorities in England and Wales have centrally-organized policies for administration by computer in their schools. He is convinced of the benefits that can be gained. "A computer system well used is of inestimable value," he says. "It can save one day a week minimum of senior teacher time."

Harrison expects the systems being introduced in Suffolk will free the equivalent of one senior staff member from administrative duties.

Hytech Microsystems argues that schools have similar computing needs to commercial business. "A secondary school of 600 pupils compares with a company with a turnover of between £1 million and £2 million a year. A commercial concern of that size would be computerized," says chairman, Chris Howard Davis.

Like a business a school needs financial management and has to hold personnel records, says Howard Davis. It also has to handle inventory control for everything from books and desks to laboratory or sports equipment.

The ILEA is working on a project due for completion in April 1988 to install a stand-alone micro for administration in all its schools. The project was started last year and already two main drawbacks to the stand-alone idea have come to light.

First, most schools are made up of more than one building or site and obviously a sole computer can only be in one place at a time. Second, a need quickly arose for multi-user capabilities as people queued up for a turn on the computer, particularly at peak times such as holidays.

So now the ILEA is testing a

multi-user supermicro system. The Computerized Local Administration System for Schools (CLASS) has been installed in two schools in Westminster and Wandsworth. The schools chosen were both considered to be "relatively computer literate" and were split sites.

CLASS runs on a specially-modified Spic micro from Jarogate. It uses an Intel 80286 processor and runs Digital Research's Concurrent DOS operating system. The software has been developed by Resource Techniques of Bushey and the ILEA, who plan to market it jointly to other authorities.

Systems costing £7,000 with four screens, a modem and a printer are now up and running at Walsingham School and North Westminster Community School. They are being used for tasks such as school finances, library and exam administration and timetabling. The school in Westminster has bought a further two screens which are being used as electronic noticeboards. The CLASS system can communicate with IBM or ICL mainframes.

The Suffolk scheme is more ambitious. Inter-linking computer systems are being installed in 39 secondary schools, three area education offices and the authority's headquarters.

The SMAC system runs under AT&T's Unix operating system on the NCR Tower family of computers. Explaining the choice of hardware, Jack Harrison says: "We wanted a range of compatible kits with smaller systems for schools which could expand for larger systems in the area and headquarter levels."

"We ended up with the NCR Tower - a family of machines with a common operating system. We think we were fully justified and would have no hesitation in recommending the kit or

the operating system."

NCR Mini Towers have been installed in 11 schools so far. These are linked via the public switched telephone network to Tower XPs in area offices. An X.25 link connects the area offices to a Tower 32 in the education authority. This in turn communicates with the county's ICL mainframe. The SMAC system can also handle IBM protocols.

The basic school system provided by the authority costs around £15,000 and comprises the Mini Tower and software, two terminals, two printers and a modem. Additional terminals have to be paid for out of the school budget.

At the school level, the software handles databases for premises, pupil and staff information. There are accounting modules for school finances and office automation facilities such as word processing. The system can generate 100 standard reports. There are also modules for time-tabling, organizing parents' evenings, pupil assessments and so on.

At the area or headquarters level, the SMAC system stores subsets of pupil and school data and additional information about pupil benefits such as free school meals and transport entitlements. It also holds staff contract details and data about teacher supply, availability and cover.

The SMAC system has been designed for operation by support staff such as the senior school secretary rather than teachers. The first two terminals provided as standard are generally located in the school office.

"The last place we advise placing a terminal is on the head teacher's desk," says Jack Harrison. He argues that access to the computer makes a head teacher even more tied to a desk than normal. But, he admits that few

schools follow his advice and head teachers find the funding for an extra terminal of their own "very quickly".

Suffolk has set up a team of 10, including computer systems analysts and advisory teachers to support the SMAC system and co-ordinate with the schools. This team trains the school staff in the use of the system and helps with any problems. The support centre also organizes the maintenance, by a third party, of all the systems.

Harrison says schools in Suffolk that have systems installed have reacted enthusiastically and those that have not yet got them are fighting to be cost in line. It is a comparatively small education authority, but kitting out the 39 schools alone will by the end have cost nearly £300,000.

Now that the SMAC system is well tried and tested, Hytech Microsystems is starting to market it further afield. The company sees its main target as authorities themselves wanting to introduce county-wide schemes. But interest is also coming from independent schools.

Both Resource Techniques and Hytech Microsystems realize that when focusing on the education market they must offer flexible purchasing schemes. Resource Techniques expects a leasing system will be attractive and says its CLASS system could be leased for around £45 a week.

The ILEA has found an unexpected saving from CLASS. The computerized library administration element of the system in Walsingham School in Wandsworth is helping to reduce the number of books that go missing.

Those education authorities which have embraced the idea of computers for administration in school look well set for the legislative changes that are on the horizon. Jack Harrison in Suffolk thinks the Education Bill, expected in November, will spur the take-up of information technology in schools. "It would have happened anyway but not as quickly," he says. "Every authority is now having to address the problem."

Clare MacLure is a reporter on Computer Weekly

Cambridge Micro Software

Software Resources Across the Curriculum

Granville - (the prize holiday package)

Homerton College

Barry Jones, Fred Daly and Wac Brodzki

Finalist in the British Micro Computing Awards 1987 organised by the Personal Computer World Magazine

A rich adventure programme which allows fourth and fifth year students to take part in various scenarios using the French language. Money and time restrictions add to the excitement!

Disc and 48 pp. Teacher's Handbook
Acorn BBC 40/80 track Disc

£24.95 + VAT

Tycoon - (Managing the Band)

System Software

A dynamic simulation of the managing of a band which uses several skills including numeracy, communication and decision-making.

For a wide range of abilities and ages.
Disc and 32 pp. Teacher's Handbook
Acorn BBC 40/80 track Disc

About £27.95 + VAT

The Fishing Game

Netherhall Educational Software

An exciting simulation of the UK fishing industry which draws on mathematical and business management skills. For use throughout the secondary age range.

Disc and 48 pp. Teacher's Handbook
Acorn BBC 40/80 track Disc
(NEW) Apple Disc

£17.50 + VAT
About £20.00 + VAT

Evaluation Service
BBC (B/B+) and Master 128 Disc versions are available on 14 days approval. Contact Liz Wilson at the address opposite

NEW

Menstruation and Pregnancy

Richard Price and Netherhall Educational Software

An exciting way of studying the biological patterns that emerge during menstruation and pregnancy, and the very human consequences.

Disc and 56 pp. Teacher's Handbook
Acorn BBC 40/80 track Disc

£21.00 + VAT

NEW

The Complete Energy Project Pack

Jane and David Glover

A complete resource pack looking at energy, its sources and its uses from the scientific, historical, social and even mythological points of view.

Disc, 108 pp. Teacher's Handbook and other resources.
Acorn BBC 40/80 track Disc pack

About £32.50 + VAT

NEW

Conflict and Compromise in History

Netherhall Educational Software

An enthralling package which gives students an opportunity to play historical roles and to explore the consequences of their decisions.

Disc and 48 pp. Teacher's Handbook
Acorn BBC 40/80 track Disc

About £25.00 + VAT

Cambridge University Press

The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU.

HARDWARE

On the next two pages, Joe Telford responds to the DES document 'New Technology for Better Schools'

You pay your money

Figure 1

Known Strengths of Computer-Based Technology in Education Source: the DES New Technology for better schools document		
Primary	Secondary	Special
Music	Music	Music
Language	Communication	The whole range
Number	Data handling	of the curriculum
Spatial relationships	Observation	
	Measurement	
	Analysis & control	
	Investigations	
	Problem solving	
	Design and Make	

Figure 2

The items of hardware suggested for consideration in the New technology for better schools document	
Peripherals	Computers
B&W printers	Acorn Master Compact
Colour printers	Acorn Master 812
Modems	Archimedes 305
Mouse	Archimedes 310
Trackerball	Archimedes 410
Concept keyboard	Archimedes 440
Touch screen	Akhiter PC
Joystick	Amstrad PC1612
Bar code reader	Apple Mac Plus
Control "buffer boxes"	Apple Mac SE
Plotters	Apple Mac II
Graphics tablets	IBM PS/2 Model 30
MDIs	IBM PS/2 Model 50
Video interfaces	Olivetti M24
Disc drives	Olivetti M28
Winchester discs	RM Nimbus PC-188
Networks	RM Nimbus AX-288
Mid Res Display screens	RM Nimbus VX-388
	Torch XXX

Figure 3

- Management checklist for buying a new computer
1. Is there enough relevant software?
 2. Has it a proven track record and is it robust?
 3. Can it be easily and cheaply maintained?
 4. Is there local and national support for it?
 5. Does it fit at least one specific task?
 6. If it can only be used in this one way, does it merit sufficient priority to go ahead and purchase?
 7. What additional parts and software are needed, and at what cost?
 8. Is it a machine for staff or pupils?
 9. How many children will directly benefit from its purchase?
 10. What in-service is required?
 11. Who will be responsible for it, and what if that person leaves?
 12. How will you replace this machine when it fails?

A Unique Aid for Science Students

The Nuclides Data Base, a new computer program available from the U.K. Atomic Energy Authority, enables science students to explore some of the concepts at the heart of nuclear physics.

This unique educational aid has a large and rapidly accessible store of invaluable information on such topics as half life, binding energy and nuclear radius.

Designed by science teachers primarily for use by students in the 16-18 age group, the program should also be helpful in nuclear physics introductory courses at tertiary level.

Disk versions of the program are available for the BBC (including BBC Master 128), RM 480Z and RM Nimbus microcomputers. All versions are network compatible.

The package, which includes booklets for teacher and student, costs £12.00 inclusive of VAT and postage.

Purchasers will receive a FREE copy of an A0 size (914 x 1189mm) chart of the nuclides.

To obtain further information and an order form please use the coupon below.

The U.K. Atomic Energy Authority, Room 118, 11 Charles II Street, London SW1Y 4AG.

Name _____
Institution _____
Address _____

On July 21 of this year the Department of Education and Science circulated a proposal to all I.e.s.s. entitled *New Technology for Better Schools*. This document expands on the announcement of the availability of education support grants (ESG) for information technology, and shows how the ESG is part of a much wider strategy for new technology in schools.

The main focus is the application of information technology across the curriculum, both in technological and other areas.

The paper reports statistics on machine usage, quoting an average of 100 children per micro in primary and 100 in secondary, along with a comment that 33 per cent of the teaching force have never been involved in any computer-related inset. While agreeing in part that Britain's IT pioneering experience has been extremely valuable, the document points out, not incorrectly, that there is still a long way to go, and that the way ahead must be based on those areas which are particular strengths of IT, with the notable secondary exceptions of IT and computer studies as subjects.

Figure 1 shows a breakdown of the particular areas regarded, presumably by HMI, as being supported by IT-related activities.

Particularly interesting is the very high level of emphasis placed on music. While not disagreeing in the slightest with this, I cannot find very much preliminary work from the days of MEP which would support it, although a Music Technology Centre has been set up, and access to music facilities figures highly in the specifications of several new computers.

Another interesting point is the apparent lack of comment about computers and art. Perhaps this area is not a known strength, or is it disguised in the comments about "spatial relationships" and "design and make"?

The document explains the six major headings under which provision is required over the next few years. These cover:

Curriculum materials and software
In-service teacher training
Advisory teacher support
Information and advice
Technician support
Hardware

A cynic could translate these six areas as the return of MEP with a touch of DTI support.

Certainly there is nothing new in the statement concerning curriculum materials and software. It seems time that our educational software manufacturers moved towards the international standard languages, like "C" and developed materials which would

be applicable to an international market. This could regenerate software production and reduce the unenumerated "versioning" of our best software which is currently happening in countries with large educational markets.

The progression in inset is towards a minimum level of IT fluency for each teacher, with a key teacher policy, where one teacher in every primary school and one teacher in every major secondary school department is nominated to take on board a more specialist role in the curricular application of IT.

The information and advice policy follows the rules designed in the days of MEP, and will depend on the participants, although the application of new technology in communication systems like NERIS may improve matters.

The proposal really starts to look interesting when mention is made of advisory teachers focusing on their cross-curricular role. The proposed ESG for the financial year 1988 to 1989 is supported by an overall pool of £10.5 million from which I.e.s.s. can bid for cash, but the advisory teachers themselves will be trained by the Microelectronics Education Support Unit (MESU), and it is envisaged that MESU will have a central role in supporting them "in the field".

For the average I.e.s., if there is such a thing, this advisory teacher support might mean three in primary, two in secondary and one in special needs. Spreading such support effectively will be a difficult task. It's a classic case of needing more to do more, and yet many classroom teachers would be grateful for any support, so this proposal is welcome.

There are several problems involved in the concept of IT advisory teachers, not least of which is finding such people. Teachers with the specialist abilities required are generally thinly spread. Additionally, the shared management of these advisory teachers, i.e. I.e.s., MESU, specialist adviser, IT adviser, could mean that they find themselves following conflicting directives, in the disadvantage of the teacher in the classroom.

The suggestion that technicians could be appointed to maintain systems and set up hardware for lessons has been long overdue. Unfortunately the paper does not discuss any financial support for I.e.s.s. employing IT technicians, but simply urges industrialities to develop a policy for providing technician support and training.

How much bearable life would be for the teachers taking on board the government's suggestions for developing IT specialists, if they knew they did not count on technical support in the classroom. This part of the proposal would have benefited from some fund-

ing, or perhaps even support from the Manpower Services Commission.

The last part of the proposal suggests that enough hardware should be provided to let pupils make regular use of IT-relevant activities. This is bound to meet with acclaim, from teachers and manufacturers alike. There is to be an additional budget in 1988/89 of £8.5 million which will support the ESG specifically for the purchase of hardware. This essentially means computers and peripherals, although other hardware will be considered for inclusion as and when its value is established. The list of hardware is shown here in figure 2.

I.e.s.s. are also asked to complete a data return form appended to the document, and to return a statement of their development policy before December 31. This document specifically requests that each I.e.s. address the following issues:

The pattern of current provision
The I.e.s. policy for the use of IT and the stages through which this policy will be implemented
Structure and staging of IT support
Services in schools
The management of the proposed IT advisory teachers
The local I.e.s. regional IT co-operation policy
How industry support will be elicited
The place of the IT ESG in the I.e.s. overall IT policy

A broader statement linking all elements of IT finance into a coherent policy, including TVEI, inset grants, ESG, etc.

The message is clearly that here is a financial injection to move all I.e.s.s. forward along the recommended route of cross-curricular IT. As has become commonplace, the finance is conditional on each I.e.s. delivering a statement, almost, if you like, a contract, to agree to the rules laid down by the government, and not to diversify into IT activities which might be frowned upon. Reaching between the lines, there is the possibility that more monies will be forthcoming, but that I.e.s.s. must make positive moves to encourage local industries to participate in funding their IT policy. Also there is the unanswered question of the level of technician support.

Just how much notice I.e.s.s. will take of individual schools' needs in reacting to this document is difficult to say. The December deadline means that authorities with pre-existing IT policies will have an easier time than those without. Yet I wonder if schools will think the whole exercise is just another version of that well-known computer phrase: "What you think you want, is what we get!"

ter manufacturers. Look at the amazing graphics of the RM Nimbus or the Mid-compatibility of the Atari (strangely not included in the ESG document) or the wonderful approachability of the Apple Mac.

Such new facilities, combined with greater speed and more memory, are bound to generate rich new types of educational software, and hence be valuable assets to a wide range of learning environments. So, currently we use what is available, but we should always keep an eye on the future.

My advice to educationists is not to measure machines by speed specifications, rather consider the quality of the software using those specifications. A raw speed of 8 million instructions per second means nothing if the machine doesn't have the educational package you need, or if the package you can buy would run as efficiently on a cheaper micro, or even one which you already have in school.

The DES's advice in their document *New Technology for Better Schools* comes as a series of recommendations which, in the main, are sound in terms of a country policy, and many would fit into a school policy too. The document begins by asking if the computer system being considered is capable of future expansion. This is clearly addressed mainly at the I.e.s., who might be suggesting a specific machine for schools. A machine with an open-

HARDWARE

Guidelines for hardware purchases

PRIMARY SCHOOL

Here, more than anywhere, a general purpose machine is required, which will support the activities that have come to be regarded as good primary practice: language development work, problem solving, through adventures, and mathematics; explorative and investigative work, music, and graphic work; the use of microworld environments like Logo, and the links to CDT made available by control. Much more thought needs to be given to accessing computer facilities. Certainly environments like those provided by the mouse and windows would prove valuable.

In extending the use of computers in primary school, consideration should be given to teacher inset, and here compatibility with existing micros, and their software, must be the key factor. This probably boils down to RM Nimbus micros for those already using them, and BBC Master 128s for the schools with BBC micros. There would, however, be a slight benefit for the latter to move towards the Archimedes system, if the price was right, as this would enable the use of windowing environments and expand the use of packages like Logo.

Imagine the value of a microworld which could expand as the children developed, and which could be large enough to let groups of children explore and create many different paths to learning. Computers capable of housing such software could be dictionaries, expert systems, control interfaces, graphic design and music composition tools at the same time.

SECONDARY SCHOOL

Much that has been said of the primary school is also relevant to secondary education, but this phase has its own special problems when it comes to choosing a micro, and we are now beginning to find that one type of micro might not be enough.

In general terms the secondary school must keep a weather eye on the primary and tertiary phases, so that it assists by providing continuity of experience. There is much to be said for adopting a machine at least in the lower school, which matches those in the feeder primaries. This means that programs which the children have not can be re-used, and extended. This is particularly valuable if the school has a policy of encouraging skill development in the key cross-curricular IT themes: text management, information handling, simulations, and exploration and

investigation through programming, control, and graphics.

As the student meets new challenges in the curriculum, each subject area needs to consider the role of the IT-based skills in the activities offered. This might mean a re-think of a policy which would normally advocate a single type of micro.

CDT

The key factors here are likely to include the applicability of a particular computer for design purposes. This naturally links into the supporting software. Design packages are currently available on the BBC micro, Nimbus, Apple and IBM ranges of computers. It's a case of "you pay your money". But what about the other side of design, print-out or plotting? Schools don't want to spend a vast cash on a new computer and then find that the plotter and/or software costs far more than the computer. Local information centres might provide a range of useful machines for teachers to examine before deciding to buy. Remember too, that if the need in the CDT department is for a general purpose machine for computer aided design, control, and some computer assisted learning, then this normally limits the school to the RM or BBC range, though even here the control interfaces may be an unforeseen extra.

BUSINESS STUDIES

More and more business studies suites are growing in schools, filling one or more rooms with micros. Often the automatic choice seems to be something like an Amstrad PCW256, which is one of the cheapest word processors around. After a while the need to handle accounts, databases, and stock lists appears, and if schools have gone this way then they must follow-up with something like a specialist commercial business software. This always needs careful monitoring by staff, because good business software is not always good educational software.

When choosing machines for business studies it is important to make sure that the potential micro is not part of a short production run. This could lead to problems in maintenance and in obtaining software at a later date. It is important, too, that there is enough local support for in-service training, and that the IT teaching techniques to be used are reasonably similar to those adopted in other areas of the school. Again, software will probably be the

deciding factor in the purchase of machines, but schools could consider the IBM clones, like the Amstrad PC, or Akhter PC, while the BBC or RM range could be an alternative based on compatibility.

SCIENCE

In addition to the normal role of the computer as an IT tool, the science department might wish to think of it as a laboratory tool. This is a classic case where specialist computers would be most valuable, eg the Gypsy, Velo, and multi-tasking Scorpion Micro.

MUSIC

Playing and composing music nowadays seems to require at least one computer in the music department. Having said that, music teachers generally prefer to get their feet under the technology table by first working with electronic keyboards. From here to multi-track recording is a short step, but eventually there is a need for some element of digital synthesizer control or for a compositional aid, and here the computer has a role.

Once the school decides on a computer for the music department, then software again forms a key element of the choice, but this time it's software and hardware combined, because some form of synthesis control is usually necessary. This might be through a plug-in synthesizer box and keyboard, like the Hybrid 4000/5000 (Musical Instrument Digital Interface) for the BBC Master, or a MIDI (Musical Instrument Digital Interface) for almost any computer. The main problem with MIDI, is that most software is not written for education. There are some extremely good classroom packages around, again on the traditionally "educational" micros.

The main word of warning here is, don't buy a computer that looks good, simply because it's on special offer. Some such systems, like the Yamaha CX5, seem to have ended up prematurely out of production.

SHARE A MICRO

There is much value in adopting a shared ownership policy in secondary schools. Some departments have partly similar needs, and where this happens a micro could be shared at least until another one has been bought. Take for example the art and CDT departments; history and geography; business studies and English; CDT, science and IT/computing; mathematics and business studies. The links are there, if we are prepared to look.

SPECIAL NEEDS

Again the general comments made previously are of use to schools intending to support special needs children, whether in mainstream or in special schools. The main element in choosing a micro must be the availability of software to open up the widest possible curriculum. In addition, the availability of specific control interfaces for any micro is of particular importance here, because many special needs are linked to sensory or motor disorders. It is a pity that none of the newer machines come with the same level of built-in control interfaces as the BBC Master. This may slow their adoption in special needs situations.

ORGANIZATION

For schools buying a computer, there are a number of simple guidelines which are organizational rather than technical. In any technology-related industry, employees are often more impressed by what a computer can do for them, than by what it can do for the job, and education is no different.

One of the tasks of the school management team is to assess the real need for any particular micro, in terms of practical usefulness, reliability and curriculum effectiveness. A non-specialist can perform this task by applying a little common sense and following a short selection of questions (see figure 3). Above all, it is important to look always at the price of the whole system, rather than costing a package in endless parts and finding that more parts are needed as the machine shows increasing reluctance to cope with the task. Note too that the "what" purchase, bought to satisfy the keen member of staff, will often only prove valuable until that person leaves the school or loses interest.

The less common machines will generally have least educational support, to the point where only the dealer can help, and generally their appreciation of education is not a formula for good classroom practice, even supposing they are willing to give free advice.

The minefield of new computers is always difficult to negotiate, but as long as the micro matches the task, has currently available software which is relevant, and there is some degree of local educational support, then there is a good chance of making a sound purchase. Add in that the ESG for IT money, and there is no reason why we should not increase the access to this technology for all children, and in doing so, improve their learning environment. JT

NOW THERE'S A RECORDER TUTOR THAT CAN BE IN FIFTEEN PLACES AT THE SAME TIME

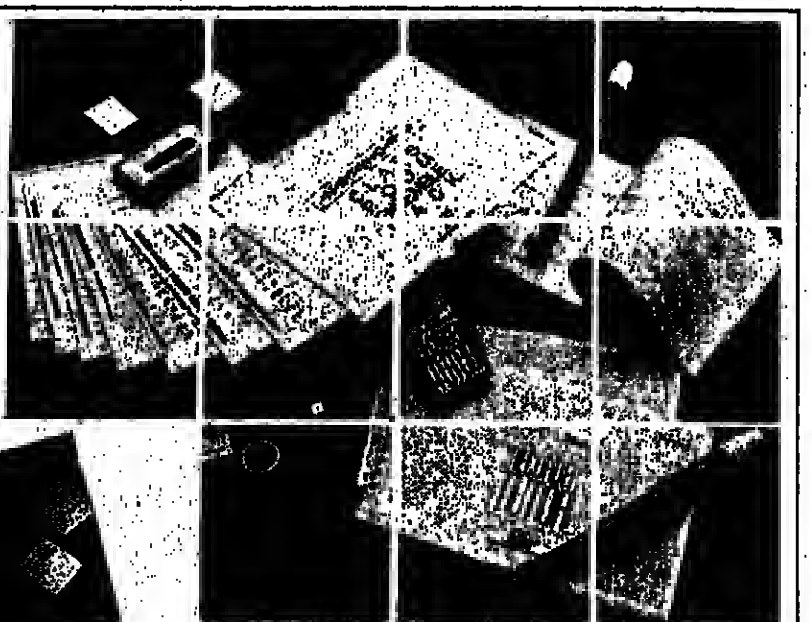
As a music tutor, you'll know it's impossible to be in even two places at the same time. And yet pupils need individual attention, according to ability and the pace at which they work.

The Mupados Network Classroom Ensemble Pack offers a unique solution to the problem. Up to 15 BBC computers can be included in the net and each screen becomes a pupil's personal music tutor.

Any combination of instruments and abilities is catered for - Mupados will automatically play each pupil's part, highlight which notes to play and act as a conductor. And once the pupil becomes familiar with the technique, a full Orchestral Accompaniment cassette can be added as an encore.

The Classroom Ensemble Pack is perfect for busy teachers and practical for pupils. And the price of £69.95 (ex VAT and carriage), is music to everybody's ears! Further information, demonstrations or immediate despatches from:

AB European Marketing,
Wharfedale Road, Pentwyn, Cardiff CF2 7HB.
Telephone 0222 733485.



mupados

· N E T W O R K ·

C L A S S R O O M E N S E M B L E P A C K

TECHNOLOGY

Interactive video — what the publishers have produced . . .

A foot on the Nebraska Scale

Interactive Science Laboratory
Interactive Videodisc £350
Produced by Futuremedia Ltd
Published by John Wiley & Sons Ltd,
1987.

We have been assured by the educational prophets that interactive video is to be one of the learning media of the future. This package, with a rather futuristic price of £350, attempts to step into that future by offering a videodisc on four central science topics with an important past and a long life to come. The topics of Electrolysis, AC Circuits, Chromatography, and Distillation receive detailed treatment.

But before getting stuck into the science the user has to get started with the system. This is where those minor problems which plague all human beings using machines begin to surface. They may seem insignificant to the manufacturer but are of major importance to the classroom teacher.

A school or local authority which can afford the *Interactive Science Lab* is most likely to purchase it as additional learning material to run on the so-called "Domesday System". It would therefore seem strongly advisable to design a package which can run on that system with the minimum of adjustment before or after use. Unfortunately, small but annoying adjustments have to be made. First, a new cable has to be formed to connect the micro to the videodisc player (about 20 minutes' work for the lab technician). The large ribbon cable used when running *Domesday* must then be disconnected each time the *Interactive Science Lab* is set by connecting the new cable. Moreover, after logging the science lab, a command of:

* CONFIGURE TUBE
must be typed in. In order to re-

configure the system to run the *Domesday* discs.

How many teachers who use the Wiley discs will remember to type in this command after using the system? Forgetting to do so will incur the wrath of subsequent users, who will accuse you of breaking the system as I learned by discovery.

These are simple but practical problems which need to be sorted out or at least displayed in huge letters on the front of the manual rather than the back page.

In contrast with the starting problems the content and running of the package is to a large extent trouble-free and at times enjoyable. The Chromatography section begins with a clear and well-explained video sequence explaining the process colourfully and some of its history. Key concepts such as "adsorption" and "desorption" are explained, while time-lapse photography is used effectively to show thin-layer and column chromatography. Gas chromatography is then demonstrated and its use for studying volatile liquids and gases is explained.

Every one of the four topics is covered by a sequence of lesson, review, experiment, quiz although the order can be varied. The chromatography lesson, in which the user is largely passive except when typing in the occasional response, is followed by a simulation of an experiment on gas chromatography. The student is more active (or interactive?) here, being allowed to control and vary three of the parameters controlling the process. The user can even shut and switch on the oven himself, using a simulated switch on the screen.

Distillation is covered using roughly the same format of lesson, review, experiment, quiz. The ideas of simple and fractional distillation are explained through a video sequence and a clear, well-structured commentary.

JERRY WELLINGTON

Questions are asked on the concepts, most involving one or two-word answers to factual questions. Unfortunately there is little tolerance of error in the program so that an answer of "column" is wrong, whereas "fractionating column" is correct. A more open question on ways of controlling boiling liquid accepts the answer "anti-bumping granules" but not "boiling stone", for example. Similar intolerance occurs with tiny spelling mistakes or typing errors. This feature of a supposedly interactive program needs correcting.

The student's progress score is recorded and stored on a separate floppy disc throughout a topic. This is a valuable feature, but unfortunately it means that the user is constantly swapping the "Student Progress" disc for the "Program disc" which actually controls the interaction. With a single disc drive the user is continually changing one floppy disc for another during the lesson. This can be extremely annoying and tedious, as well as educationally disruptive. Even with a double disc drive the "swapping" of one disc for another is a distraction.

The experiment on distillation is extremely novel in allowing the user to assemble the complete apparatus on the screen. The condenser, the flask, the thermometer and so on are moved into position with the cursor keys and then put together with the Return key. For those who fear glassware or have two left hands this is a practical chemistry at its best. Once assembled, the distillation experiment can be carried out by varying certain parameters to achieve the separation of pentane from hexane.

For teachers this kind of video simulation can remove safety worries,

save time and money, reduce waste, and generally make for a much easier life. But is it science? Many would argue that the skills of the scientist involve manipulation, assembly, smelling, feeling, observing and taking safety measures. Such practical abilities, arguably essential for a working chemist, are by-passed by an interactive video lesson.

Side 2 of the videodisc, controlled by a third floppy disc labelled "Program Disc Side 2", provides material of a similar format on the topics of Electrolysis and AC Circuits. The former explains the basic principles of electrolysis and its terminology both aurally and visually. Again, the explanations are clear and attractive, although they involve more watching and listening than interaction. A simulated experiment on the electrolysis of sodium chloride is available, with the student able to vary the temperature. Once again, the topic is tested by a quiz (of 10 questions) and the student's progress, strategy and time can be recorded on the progress disc.

Of the four topics, I found the coverage of AC Circuits least satisfactory. After a lesson on Ohm's Law and the meaning of AC, the student is plunged into experiments which involve an AC circuit and a dual beam oscilloscope. The sudden jump in difficulty is made worse by the lengthy list of instructions given by the commentator before the student can start. There is far too much information for the user to take in, and no support is given by the manual. The results table is confusing and, for me, difficult to use. Support from the manual must be provided in future if this part of the interactive video is to be comprehensible to the beginner.

To conclude, the package as a whole has some valuable features and could be a useful learning resource for 16 to 18-year-old students who have access

to the hardware to run it. The producers have taken on a huge and formidable task with some educational success. Whether or not it will be commercially successful at £350, and possibly £3,000 for the system to run it, is another issue.

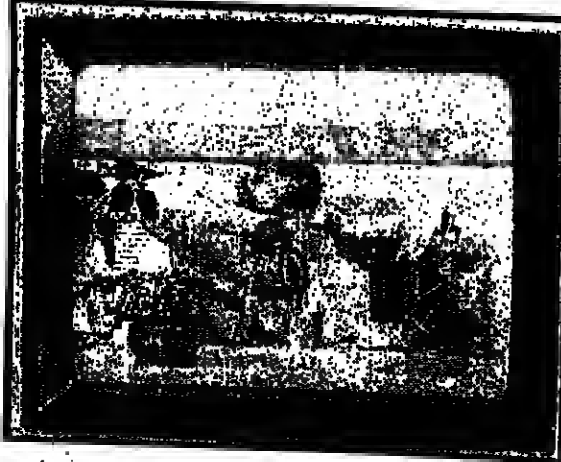
The question of interaction is also interesting. I found myself interacting as much with the disc drive as the program itself. The interaction with the program involved either typing in response to closed-ended, factual, recall questions or controlling variables in a simulation. A measure of interaction in the use of IV, called "the Nebraska Scale", has travelled across the Atlantic. This package is well down the scale. But interactive video in school education has to begin somewhere and the foot of the Nebraska Scale may not be a bad starting point.

As it stands, the *Interactive Science Laboratory* has several annoying features for the user which the producers might well be able to improve quite cheaply for a second version. In addition to those mentioned above, the manual produced, not very helpful, and contains no educational support material whatsoever. A final feature for complaint: the text from the floppy discs did not always line up with the spaces, lines and dots provided by the picture from the videodisc.

Despite these complaints, the *Interactive Science Laboratory* is an important new venture in education which deserves recognition and more thorough evaluation. I can only suggest that readers find a way to view it and judge it for themselves.

Jerry Wellington works in the Division of Education at the University of Sheffield.

. . . and what the educationists are producing



packages are due to be completed by the summer of 1989.

Energy

Young people acquire a common-sense understanding of energy from their everyday experience, but in many cases this is in conflict with accepted scientific explanations. The energy disc will therefore start from such familiar contexts as home, leisure, entertainment and the human body. This will enable students to develop a fuller appreciation of its sources and uses. A data bank will also be included, which should be easily accessible for a wide variety of potential users.

The trial disc tests different combinations of graphics, animation, new and archive film, and computer-type games which could be incorporated into physics, integrated science or history lessons. The emphasis is on flexibility of use and finding simple and effective ways of allowing teachers to access, sequence and structure material to suit their own particular approach and subject background.

A scientist, for example, can use the material on water power to show how energy is generated, stored, converted and used. A historian can use it to explain how water-powered mills developed and how they worked. For teachers working in all fields, the social consequences of energy policies will be explored, to help students reach their own conclusions about such important

NEIL STRAKER

matters as the siting of power stations, their fuelling, the energy uses of food, insulation of houses etc.

Radiation

The 14 to 16-year-old student of average ability will benefit most from the radiation package. The concept of radiation enters into a range of current studies, health education and politics as well as physics, where traditionally only the impartial, scientific facts are taught. The disc is designed to explore texts of relevance in everyday contexts of importance to young people. The importance of this has recently been stressed by the Association for Science Education and the Secondary Science Curriculum Review.

The user is invited to join a group of teenagers in their search for knowledge about radiation. A variety of techniques for interaction, instruction and video production have been adopted. Material is presented through various combinations of still frames, moving pictures, text and audio, and keyboard use is minimal. Instead, the student uses a "hand mouse" to control the program.

To help the learner pace him/herself, there are several "junctions" at

which he/she is required to interact before continuing the lesson. These "pause-for-thought" points are useful both with small groups and as discussion starters when the IV is used for teacher demonstration. In an ordinary kitchen the user is invited to "mouse around" and point to things which he/she thinks produce radiation. The computer then analyses the answers before presenting another still picture, or textual information, or moving video sequence.

Risk and Probability

The mathematics section addresses the concept of probability by immersing the user in a micro world. Real-life issues arise which force the learner to make decisions based on probability. Collecting "stickers" of cartoon characters of sports stars is one probability-related activity in which most school children tend to participate. A number of problem-solving activities on the disc involve role play and decision making. In another section, a surrogate travel sequence of 1,500 stills is used to introduce a bus route to children during the construction of a bus timetable.

The user's decisions are stored by the computer, then clips of film and stills from the videodisc, along with graphics and text from floppy disc, are played which impart knowledge based on the decision.

Risk and Probability attempts to use

the full potential of the IV system. Both audio channels on the disc player are packed with information. Audio 1 has the sound to match original moving sequences of film while the second audio channel contains information which is synchronized with graphics and text. The result is a doubling of running time for the user and "talking" software which is informative and exciting. The printer, an integral part of the workstation, is used to provide feedback and materials to promote mathematical discussion.

This complex multi-branch program has provided hours of stimulating mathematics for children. It allows children to speculate and see the consequences of their decisions. Learning is then enhanced by changing a decision and seeing the same characters react in a totally different way.

During the summer term of 1987 preliminary trials were held of the radiation and probability sections. These took place in six comprehensive schools in the north east. The ILP team has been encouraged by the reactions of students and teachers:

"I like the way that people talk to you. It's not like a normal computer game—it puts a bit of excitement into it."

"It makes you want to learn maths instead of dreading the lesson."

(Third year pupils, St Patrick's School, Cleveland)

"It's the most exciting thing I have seen in 20 years of maths teaching."

(Head of mathematics, Keldholme School, Cleveland)

The team is aware of the danger of being overtaken by developments in IV technology. Interactive compact discs likely to be available within the next five years. However, the development of videodisc development is the most crucial phase, for good ideas conceptualized at this stage can clearly stand the test of time.

And initial reactions from the trial schools suggest that valuable learning packages are being produced in the key curricular areas of science and mathematics.

Neil Straker is a member of the Inter-

TECHNOLOGY

Optical publishing

Book worms

JACQUETTA MEGARRY

discs. Given that five-disc CD decks have already appeared as a consumer item costing only a few hundred pounds, one can foresee a cheap CD ROM equivalent with 3,000 Megabytes of database on-line to a micro.

The implications of all this for the educational market are considerable. Consider the Microsoft release *Bookshelf*. "The most important breakthrough in writing since the word processor" is Microsoft's modest claim. A single CD ROM provides you with on-line access to 10 major refer-

ence works — including Roger's *The Saurus*, Bartlett's *Familiar Quotations*, The 1987 *World Almanac*, a massive spelling checker and a range of forms and letters, business information sources and manuals of style and usage.

The important point about *Bookshelf* is not the gee-whizzery of how much text is on the CD ROM, but the ease with which you can use it. Information is instantly available without leaving your word processor, and marking your place in the reference

works and your own text makes it simple to pick up where you left off. Its easy-and-paste facilities should alarm anyone who disapproves of plagiarism or who worries about copyright.

The fact remains that *Bookshelf* is probably the most important collection of writing tools ever developed, of profound importance to amateur and novice writers as well as professionals. It claims compatibility with "all leading word processors for IBM PCs and clones" and could herald a new direction in software publishing — as well as

a new set of problems for educators trying to keep up with its implications.

Bookshelf clearly underlines the difference between the future of CD ROM and WORM. While the WORM disc is essentially a computer peripheral, CD ROM is a publishing medium. The title of Microsoft's first volume (*CD ROM: the New Papyrus*, 1986) misleadingly suggested an analogy with paper, which for most of us is the archetypal write-once medium, erased only in school jotters, read-only when packaged into books. Volume two rightly puts the emphasis on optical publishing. Like any publishing enterprise, CD ROM providers will need a healthy number of potential customers, and good market research to assess their needs. They are not in competition with WORM manufacturing, but appealing to a different market.

CD ROM: Optical Publishing is published by Microsoft Press and distributed in the UK by Viking.

Here's one
easy way to stop
this sort of thing from
happening again

IF YOU ARE ALREADY USING THE CITIZEN 120D PRINTER, THE MESS ABOVE IS NO CONCERN OF YOURS. AFTER ALL, THE 120D IS ONE OF THE MOST POPULAR PRINTERS WITH TEACHERS AND STUDENTS ALIKE. TO HELP YOU MAKE THE MOST OF OUR PRINTER, WE ARE NOW OFFERING A FREE 16-PAGE BROCHURE 'GETTING STARTED WITH THE 120D' ALONG WITH A FREE UTILITIES DISC. IF YOU ARE NOT FAMILIAR WITH US, HERE'S YOUR CHANCE. SIMPLY FILL IN THE COUPON OR CALL US ON 0895 72621.

PLEASE SEND ME A COPY OF YOUR 16-PAGE BROCHURE 'GETTING STARTED WITH THE 120D' TOGETHER WITH A FREE UTILITIES DISC WHICH OFFERS A NUMBER OF PROGRAMMES WRITTEN BY TEACHERS ESPECIALLY FOR THE INEXPERIENCED USER. I CURRENTLY DO NOT USE THE 120D AND WOULD LIKE TO KNOW WHY IT'S RIGHT FOR ME.

NAME: _____ POSITION: _____ SCHOOL/COLLEGE: _____
ADDRESS: _____
POSTCODE: _____ TEL: _____
CITIZEN EUROPE LIMITED, WELLINGTON HOUSE, 470 COWLEY ROAD, URBIDGE, MIDDLESEX UB8 3RW. TELEPHONE 0895 72621. FAX 0895 72622.

LANGUAGES

Gluing kit

MIKE THORNE

In recent months, the language Smalltalk has surfaced as one of the major computer-based educational research tools. Also, the price of an IBM AT compatible — the smallest computer on which a complete implementation of Smalltalk can be run — has come down to around £1,500. It follows that more and more educationists will want to try the language, many of them in the hope we all have of uncovering the computing equivalent to the philosopher's stone.

Most people's first opinion after a few hours spent trying to assimilate the language from the seemingly unfathomable books written by its developers is that it's more monolithic than philosophical.

Since Smalltalk's unusual programming methodology and the sheer size and scope of the system are daunting to a newcomer, it was intended to provide a two-level approach to programming. Thus, the programmers would write application kits (eg, all the routines you would need to write a program like ASK's *Pascal*) and then the users (such as teachers) would take parts from these kits together to form the finished product. In this way Smalltalk would allow very fast prototyping, and thus permit changes to be implemented very quickly.

Reports of children using Smalltalk have often been exaggerated. Some experimenters have used it successfully with children as young as five, the developers themselves conducted experiments with children to discover if a much earlier version of the language than the one now current (Smalltalk-80) was teachable. This earlier version was in many ways simpler, and it was only the basic concepts which the developers were trying to put across, not the whole language. Thus, children had to use Smalltalk language in a set of Logo-like activities relating to squares drawn on the screen.

At the programming level, the Smalltalk philosophy is one of "legalized hacking": you are encouraged to modify or combine existing programs so that they serve your own purpose, rather than to write new programs. This means that there must be a good supply of programs right from the start. To this end, even most of the Smalltalk system itself is available to the programmer who can patch bits of it as he or she thinks fit. Moreover, the system knows about a larger variety of data types than other programming languages such as Pascal, C and Basic, and has "procedures" built in to carry out actions on them. Thus, Smalltalk comes knowing how to do fundamental operations between arrays (addition, subtraction etc); with a knowledge of fundamental graphics shapes (square, rectangle, etc) and with pre-defined window-generating capabilities.

In Smalltalk, however, data types and the procedures which operate on them are not separated as they are in other languages. Instead, the two are combined together in "objects".

By way of example, suppose that in a Pascal program we had an integer variable representing height and a

record variable representing date. Correspondingly, a Smalltalk program might contain two different kinds of objects. One of these could contain not only the current value of the variable height but also the code for each of the procedures allowed to operate on this type of value. These might include procedures to add and subtract heights, for instance. The other object might similarly contain the current value of the variable date and the code for each of the procedures which could operate on one or more date values. These might include working out the number of days between two dates and deciding on which date came first in a given year.

Because of its use of objects, the execution of Smalltalk programs is different from BBC Basic or Pascal. With them, we first define our main program and all the relevant procedures. Nothing actually happens until we run the program, when the procedures are called and the actions they describe are put into effect.

Executing programs in Smalltalk consists of sending "messages". Thus, instead of typing `RUN`, we might send the message `GOIT` to some object which is in effect the main program. Returning to our date example, if now in the course of execution we need to know the number of days between September 29 1987 and the current value of `DATE`, we send `DATE` the message `days between` which will then invoke the appropriate message-implementing procedure.

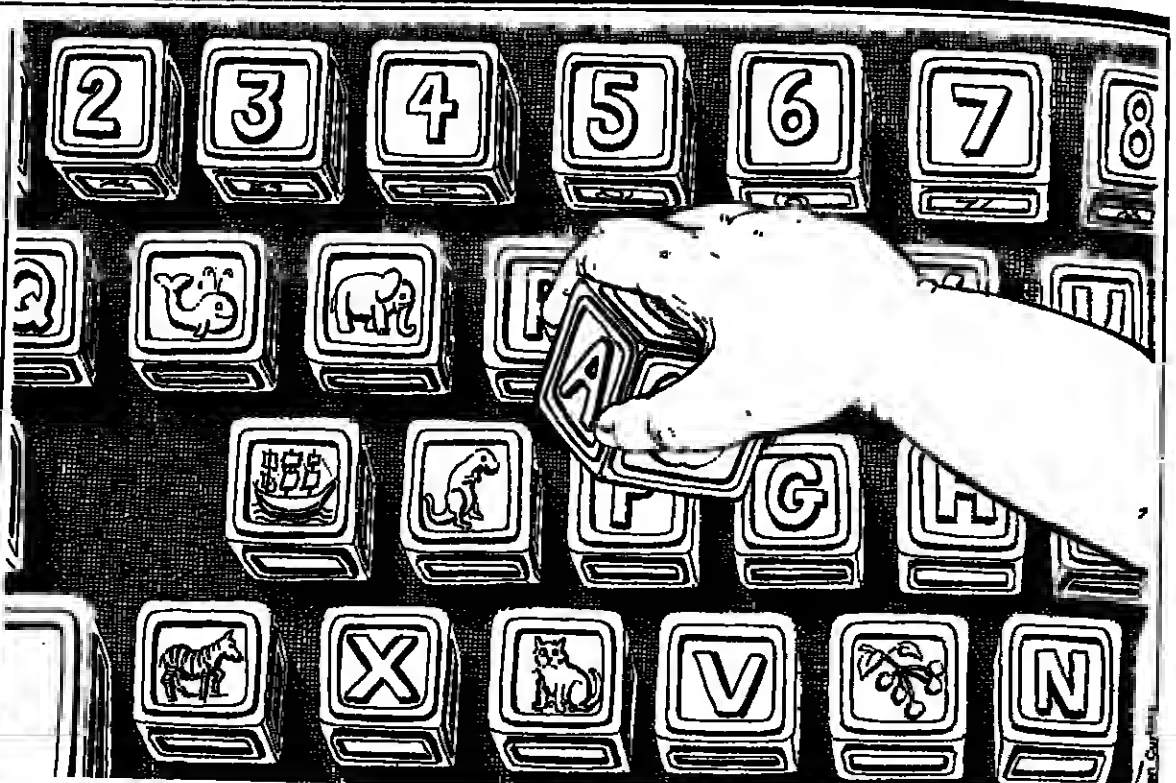
The advantage of this approach is that the higher-level program doesn't use the actual code for the days between procedure. Rather, it refers to it only by name. Thus, anyone could modify this code without any other program (or object) which uses the days between message having to be changed.

Moreover, many people are familiar with the problem in Basic or Pascal wherein a procedure which adds heights cannot be used to add the contents of two arrays, element by element. Since now to carry out a given action is stored in each object, different kinds of implementations and different kinds of implementations can store the same procedure names like `array add`, `height add`, `points add`, `dates add` etc. In each case we just send the message `add` (or even just `+`) and leave it to the object to decipher our meaning.

Similar objects belong to what is known as a "class" in Smalltalk. In fact, for fairly obvious reasons of computational efficiency, the methods for similar objects are kept in their class definition. The classes which come supplied with Smalltalk can be modified and/or extended by the programmer. New classes can be defined as sub-classes of existing ones, in which case all objects of the sub-class inherit the properties of the containing class. The body of a method itself looks very similar to a program fragment in any structured language like BBC Basic or Pascal.

The book *A Taste of Smalltalk*, by T. Kaeber and D. Patterson (W W Norton and Co, New York, 1986), is a helpful guide for coming to grips with the language. Also, the London-based company, Smalltalk Express (tel: 01-200-0220), are selling a *Little Smalltalk* program for XT versions of the IBM PC, the Atari ST, the Apple Macintosh and the Archimedes machine. You get the software free but have to buy the accompanying book at £32.50.

Mike Thorne teaches at the University of Cardiff.



C is for...?

TONY SCOTT

A significant aspect of the arrival of the more powerful microcomputers in the educational market place is the support being given to a specific language (C) and a specific operating system (Unix).

The "New Technology for Better Schools" initiative which was announced recently limits the purchase of computers from education suppliers to those which are open-ended and MS-DOS-compatible, and looks towards C and Unix capabilities. It is suggested that educational programs should now be written in C for the same reasons that it is expected that defence programs should be written in the computer language "Ada" — in order to achieve standardization, to enable better and closer contractual management of software production and to get the best out of contemporary computer systems in the area of application.

Teachers who are only encountering the 16- and 32-bit computers for the first time may find it difficult to understand why others feel it necessary to move on from the world of Basic and proprietary operating systems to achieve these objectives. After all, there are some very fast Basic interpreters now, on Acorn, Amstrad, IBM, and look-alike machines. BBC Basic itself is available for some of these machines too, and not just those with the Acorn badge.

Basic has been a blight, some would say, on the development of computer education. The problem is that its authors, Kemeny and Kurtz, did such a good job when they invented a system for teaching Dartmouth College programming the rudiments of computer in itself. People forgot that it was a device for supporting the teaching of Fortran and other high-level languages and started using it for real, even if it was not suited to the commercial world of limited space and limited time to run programs.

Why should one bother, after all, with the paraphernalia associated with high-level languages (compilers, editors, loaders, libraries) when Basic provides you with a total environment? The teacher-programmer is happy to write even quite large programs to be processed directly by Basic interpreters, and to regard operating systems as collections of calls to machine-code routines which should have been directly accessible from Basic anyway. The lack of restrictions in Basic allowed (lazy) programmers to build much more sophisticated data structures or program structures.

This malady led to campaigns for the use of "structured" languages in education — the adoption of the language "C" in Danish schools is an example — and to the specification of the BBC partially-structured Basic. Languages like C, it is argued, provide more control over detailed workings of the computer, and at the same time provide more powerful tools for dealing with data structures, and for organising programs and sub-

of programs into discrete, manageable and testable segments.

What is perhaps most heartening about the climate of opinion which sees application programs being written in C or similarly powerful languages, rather than Basic, is that it reflects a realization that perhaps the teacher-programmer should not exist anyway: teachers should be concentrating on the specification and evaluation of educational software, and ensuring that each program is part of a properly thought-out and well-documented educational package. Professional programmers should be using professional tools to produce robust software suitable for use by children.

Nobody is recommending that C should become a "teaching" language in schools, although some might use it for a level computing or in university computer science courses, but people are saying that C is a powerful and suitable tool for writing educational software. Why?

One of the marks of a good C compiler is its ability to take as input the source code ("high-level instructions") which specifies a C compiler (translation program) and is able to output the object code ("machine level instructions") of a new C compiler.

This ability to self-compile in no more than a few lines of code is a very handy trick. It makes C very easy to set up on a new machine, which means that there are very few machines of any power which do not have C compilers installed. There are almost certainly students somewhere porting C to the ones that do (it is quite a popular undergraduate project). A further consequence is that program written in C are easily moved from machine to machine. True software portability is an essential goal in the education market, where it is necessary to write off development costs across a limited and fractured market.

One of the most important, and perhaps one of the largest, individual programs written in C is the multi-tasking operating system called Unix. (An operating system is the set of routines which allow you to use the computer, eg by setting aside space for your programs.) Apart from around 1,000 machine instructions which have to be re-written by hand for each new computer, the operating systems can usually be transferred to the new machine.

Unix is an operating system which people either love or hate, with the loyalty of the devotees sometimes bordering on the fanatical. The Unix community, for such as they are, will go to great lengths to help newcomers come to grips with the system and its idiosyncrasies, and there is a very active electronic conference, USENET, within which detailed questions are asked and answered, supplemented by on-line manuals and teaching aids when provided, on the

burger, time-sharing Unix facilities. (There are about 8,000 Unix installations worldwide.)

As well as portability, a successful computer software system needs to provide its users with a vocabulary and style in which to talk and think easily about data structures and algorithms. Part of the philosophy adopted by Kernighan and Ritchie, the authors of C, and which the Unix environment also reflects, is that programmers are able to write short programs, often single procedures, and build up a repertoire of useful functions which should be shared with other users through a library mechanism. Very often these libraries, or modules within them, are placed within the public domain.

In their first encounter with the turtle, however, they begin tentatively by telling it to move forward only short distances: FORWARD 5 and then FORWARD 7 and so on.

One of the girls' knees down to look at the turtle as it examines it and explains that it has a pen inside it. Immediately they decided to know what the command to drop the pen is. This time FORWARD 5 produces a strong black line on the floor paper. The distance increases until the turtle reaches the edge of the paper. It is necessary to program it to turn round.

Go left, says Vicky. Although they have been programming the turtle to go forward in large steps, such as FORWARD 30 they revert in their turtle moves to low numbers like 5. The turtle pivots, but only slightly. The children type LEFT 7 and again the turtle turns only a small amount.

For some reason, they do not feel comfortable about trying any of the high numbers they were using to move the turtle forward. It is as if, for the moment, the rules which they have established for forward motion do not apply to pivotal motion, that while the number 30 preceded by the command FORWARD moves the turtle a long way, the same logic need not necessarily be applied to turning.

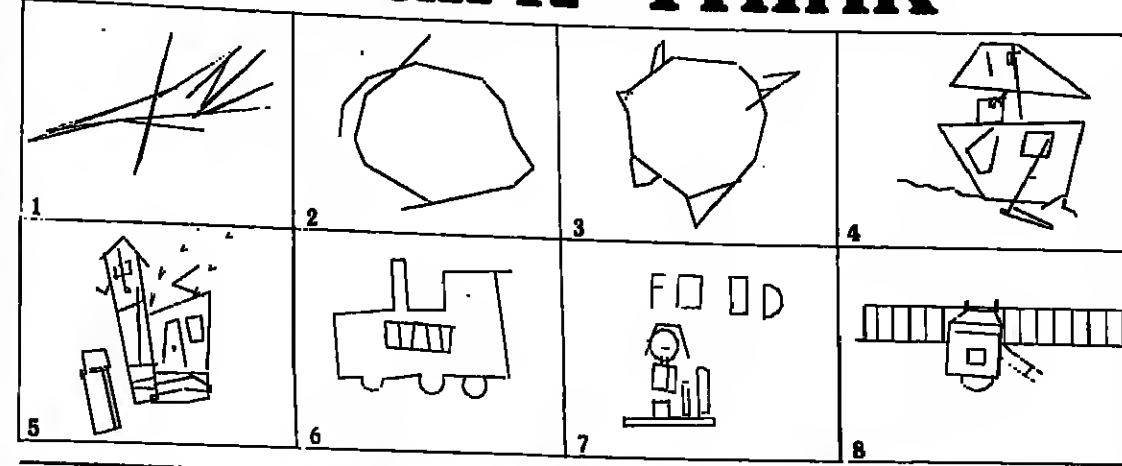
Although the children could repeatedly tell the turtle to turn left 5 degrees until it was facing across the paper again (and doing it this way would have given them a different insight into turtle geometry) they chose, instead, a different solution. After turning the turtle slightly to the left, they type BACK 30. This strategy then forms the basis for moving round the paper until, almost at the end of their time with the turtle, one of the girls commands it to turn left 70.

Their turtle drawing (figure 1) reveals a common occurrence in children's first experiences with Logo and the need to experiment with the turtle and so take control of it. They must therefore be given time to discover what they can make the turtle do, to become familiar with its world and to explore its physical abilities.

Two days after their first encounter with Logo, Vicky and her two friends have their second session with the computer. This time they get themselves a problem — to program the turtle to draw itself. It is going to be a drawing of the turtle from the side (figure 2) and move forwards. The next day they start on a drawing which is much more adventurous than anything we

LANGUAGES

I'll call it 'Think'



DAVID HAWTHORNE, JACQUELYN WALTERS

saw in their first session.

As they continue to draw the outline of the turtle each line increases in length and a spiral begins to take shape on the paper. To the girls, however, it is the shape of a turtle not a spiral.

They are quite precise about the distance of each line and the angle of each turn, programming the turtle in stages, so that it arrives at its intended position. Their sense of control has increased dramatically since their first session. At one point, they program the turtle to go into a loop and they reverse it until they are happy with the length of the line. Their conversation, which is full of phrases like "Make it turn more", "Let it go to 180" and "Back 20", reveals an increasingly authoritative attitude towards the computer and a confidence in themselves as motivators responsible for each action.

When they have successfully drawn the outline of the turtle they are unhappy with the results. "It didn't work properly," they say and announce that, the next time, they are "going to improve it". We do not ask them what they mean by "it" but it is unlikely they mean the turtle. It is more probable that they are referring to the idea of a program.

The concept of a program and programming has not been mentioned before and this is one of the first clear indications we have that they are aware of the nature of communication between themselves and the computer.

For Vicky and her group the next opportunity to "improve" their turtle shape comes 12 days later. Their first problem is where to place the turtle on the paper in their drawing. The discussion is prolonged and at times heated. Each of the girls has her own mental picture of the new shape and Vicky, who comes across as being the most confident about her idea, persuades the other two to adopt her shape.

Instead of drawing another side view of the turtle, they will attempt to program a view from above (figure 3). They instruct the turtle to draw the body of the turtle as one distinct and enclosed shape while the legs and tail are drawn as separate shapes, including the same snubby nose.

This time, however, they have high ambitions than just drawing round their shape. By lifting the pen and programming the turtle to a different point on the turtle shape's body, they draw the four legs. When the last leg is finished they tell the turtle to lift its pen and move across to the nose. They want to draw a pair of eyes and they take a long time manoeuvring it into the precise position.

When all the eyes by dropping and lifting the pen so that a blob appears on the paper. Helen wants to make the eye bigger. Before she can articulate the concept of curves the school day ends.

At the start of their next session, some 12 days later, the girls decide to program a sailing boat (figure 4). One reason for drawing a yacht apparently, is "because it is straight lines, not curves". Clearly, their thoughts about curves are still very much in the mind. Although they agree to take equal turns at the keyboard, each is loathe to relinquish it.

The need for each child to work on her own, through choice, is apparent. Our former ideas about the importance of group work and group discussion are being challenged in recognition of the evolving needs of the three girls. Although most of the children in the class enjoy being able to exchange ideas, Vicky and her group are clearly

not only a very much more complex shape, it is also a bold and adventurous program. Several elements such as the anchor and the porthole are drawn inside other elements, in this case the outline of the yacht's hull. The construction of turtle shapes from separate elements creates strong foundations for procedural thinking. Later on in the year, some of the children will begin to write their programs as procedures and to embed procedures within procedures.

Within the yacht shape there are also what appear to be three square shapes, the zero in the sail number, the anchor hole and the cabin on the deck. (None of the angles in these "squares" is 90 degrees by turning the turtle until it is pointing in the right direction.)

In the cabin there is an unfinished window which has six sides and has a crude likeness in a curve. This idea may have come from the spiral shape of the turtle in their first Logo session. The girls make a mistake in its construction and so they change its meaning. Instead of being a cabin, it becomes the Iron Man's head being taken on a journey. Thus, in one imaginative leap, a mistake becomes an idea.

It is one of the hallmarks of Logo that these actions which children define as "mistakes" can be positive and creative. There is no feeling of failure or rejection.

In the girls' next turtle session, which lasts four hours, they draw a church (figure 5). Recalling the difficulties they had agreeing a shape for the yacht, Vicky draws a rough design to show the others what she has in mind. Like the yacht, the shape of the church grows in complexity from a series of shapes. A door is added, and then a door handle. Steps lead up to the door, there are gravestones in the foreground. Birds fly around the steeple in which there is a bell.

While constructing the bell, the girls discuss the possibility of drawing a curve. Although Helen says she can't see why they shouldn't be able to do it, nobody knows how.

During this long session, the girls' stanning flags and revives. At one point, Helen and Vicky wander off and discuss what they hope to get for Christmas. Rachel remains working on the computer, showing a confidence and a concentration we have not seen before in any of her class work.

Towards the end of the session, Vicky rejoins Rachel and Helen asks if she can go and do her work. Afterwards, Rachel and Vicky refuse to talk about their picture until they have collected Helen. Although the three girls no longer seem to work well together, their identity as a group remains.

The three friends are finding it increasingly difficult to communicate. Each girl wants to develop her own ideas without reference to the others. Many of the decisions are taken without discussion and the two who are observing are left to interpret what is happening. Consequently, there is a growing antagonism at the computer. Although they agree to take equal turns at the keyboard, each is loathe to relinquish it.

The need for each child to work on her own, through choice, is apparent. Our former ideas about the importance of group work and group discussion are being challenged in recognition of the evolving needs of the three girls. Although most of the children in the class enjoy being able to exchange ideas, Vicky and her group are clearly

newly formulated theory about curves when, later, she decides to draw a curved letter "D" in the word "FOOD". She then extends her theory to produce the head of a girl in the form of a circle by programming the turtle to draw a 12 equal-sided polygon with an angle turn of 30 degrees (figure 7).

Her next piece of work, which is done with a screen turtle instead of the floor turtle, is a drawing of a gipsy cart with a fence behind (figure 8). When she comes to drawing the wheel, she adapts her theory about curves to produce a much finer curve. The outline of the carriage is a perfect square, as is the window inside, and the fencing behind is a regular pattern of fence poles at 90 degree angles.

While the fence, the curved wheel and the squares are programmed in small steps, Vicky has unconsciously created an opportunity for using repeated loops within her programming. At a more sophisticated level, there is an opportunity here to use variables, a need which Vicky has not yet defined. By preparing these opportunities, she prepares the direction and pace of her own learning.

By working with the turtle abstract, mathematical ideas are made real to children. The physical experience of constructing programs for the turtle not only helped Vicky establish a highly personal involvement with mathematics and aesthetics but it enabled her to become conscious of her thinking. Her awareness of herself as a designer and inventor of ideas was most clearly expressed when, in her last term at the infants' school, her work took her into the powerful area of building and embedding procedures. She had planned to make her very first procedure drawing a circle on the screen. As she sat down at the computer, she paused before giving the procedure a name and, turning round, said, "I'll call it 'Think'".

David Hawthorne is a former educational computing development officer for Buckinghamshire. Jacquelyn Walters teaches in Chalton St Peter's First School.

Viglen
The Perfect Partners
AUTUMN 1987
EDUCATION OFFERS

VIGLEN
WINCHESTER DRIVES
Capacities in stock

20Mb - £499	Full Acom ADFS compatible
28Mb - £504	Available also at no
40Mb - £599	extra cost for connection
68Mb - £729	to SJ RESEARCH

Can be also used to back-up Acom Winchester using special Viglen DUCK connector or directly through Econet system.
TAPE STREAMERS available for Acom and Compatible Winchesters.

WINCHESTER PRICES From only **£499 + VAT**

FROM ONLY £599 + VAT COMPLETE COMPUTER SYSTEMS
ACORN MASTER 128
COLOUR MONITOR
DISC DRIVE

ORDERS:
Please send your official order to
VIGLEN LTD,
UNIT 7, TRUMPERS WAY,
HANWELL,
LONDON W7 2QA.
TEL: 01-843 9903

Carriage and Insurance: 1 item £6.96 multiple items £10.
VAT: UK Customers please add 15% VAT to total cost.
12 months warranty on all products.
Please quote TES 10 when ordering.

TWO NEW TECHNOLOGY TITLES FROM ALBSU

BASELINES

"Baselines", developed by Cambridge Training and Development, is a package of computer-based and written material intended to provide guided self-assessment in basic skills. It consists of a disk (usable on BBC and IBM), a set of user's notes and a pack of written material.

The aim of "Baselines" is to help adults appraise their own skills and confidence in reading, writing and number. It can form one element in initial assessment, encourage learner autonomy, and explore the further uses of computers in adult basic education. Price £16.00 plus postage.

Computers and Information Technology, produced as part of an ALBSU-sponsored Special Development Project at Friends Centre, Brighton, provides a suite of programs aimed to increase familiarity with how computers work and behave. It presents a pool of material which aims to provide additional resources and to promote discussion on the role and effectiveness of computers in tools for learning and broader issues associated with life in a new technology age. Some of the possible target groups are given in the introduction. Price £16.00 plus postage.

Both titles are available from:
Adult Literacy and Basic Skills Unit
King's College House, 229/231 High Holborn
London WC1V 7JH

ALBSU
Adult Literacy & Basic Skills Unit

LANGUAGES

Gluing kit

MIKE THORNE

In recent months, the language Smalltalk has surfaced as one of the major computer-based educational research tools. Also, the price of an IBM AT compatible - the smallest computer in which a complete implementation of Smalltalk can be run - has come down to around £1,500. It follows that more and more educationists will want to try the language, many of them in the hope we all have of uncovering the computing equivalent to the philosopher's stone.

Most people's first opinion after a few hours spent trying to assimilate the language from the seemingly unfathomable books written by its developers is that it's more monolithic than philosophical.

Since Smalltalk's unusual programming methodology and the sheer size and scope of the system are daunting to a newcomer, it was intended to provide a two-level approach to programming. Thus, the programmers would write application kits (e.g. all the routines you would need to write a program like ASK's Pazzz) and then the users (such as teachers) would glue parts from these kits together to form the finished product. In this way Smalltalk would allow very fast prototyping and then permit changes to be implemented very quickly.

Reports of children using Smalltalk have often been exaggerated. Some experimenters have used it successfully with children acting as users in the sense of doing the gluing. Also, the developers themselves conducted experiments with children to discover if a much earlier version of the language than the one now current (Smalltalk-80) was teachable. This earlier version was in many ways simpler, and it was only the basic concepts which the developers were trying to put across, not the whole language. Thus, children had to use Smalltalk language in a set of Logo-like activities relating to squares drawn on the screen.

At the programming level, the Smalltalk philosophy is one of "logical hacking": you are encouraged to modify or combine existing programs so that they serve your own purpose, rather than to write new programs. This means that there must be a good supply of programs right from the start. To this end, even most of the Smalltalk system itself is available to the programmer who can patch bits of it as he or she thinks fit. Moreover, the system knows about a large variety of data types than other programming languages such as Pascal, C and Basic, and has "procedures" built in to carry out actions on them. Thus, Smalltalk knows how to do fundamental operations between arrays (addition, subtraction etc.), with knowledge of fundamental graphics shapes (square, rectangle, etc.) and with pre-defined window-generating capabilities.

In Smalltalk, however, data types and the procedures which operate on them are not separated as they are in other languages. Instead, the two are combined together in "objects".

By way of example, suppose that in a Pascal program we had an integer variable representing height and a

record variable representing date. Correspondingly, a Smalltalk program might contain two different kinds of objects. One of these could contain not only the current value of the variable height but also the code for each of the procedures allowed to operate on this type of value. These might include procedures to add and subtract heights, for instance. The other object might similarly contain the current value of the variable date and the code for each of the procedures which could operate on one or more date values. These might include working out the number of days between two dates and deciding on which date came first in a given year.

Because of its use of objects, the execution of Smalltalk programs is different from BBC Basic or Pascal. With them, we first define our main program and all the relevant procedures. Nothing actually happens until we run the program, when the procedures are called and the actions they describe are put into effect.

Executing programs in Smalltalk consists of sending "messages". Thus, instead of typing "DOIT" to some object which is in effect the main program, we type "DOIT" to some object which is in effect the main program. Rotating a laser disk example, if we want to know the number of days between September 29 1987 and the current value of DATE, we send DATE the message "DAYS" which will then invoke the appropriate message-implementing procedure.

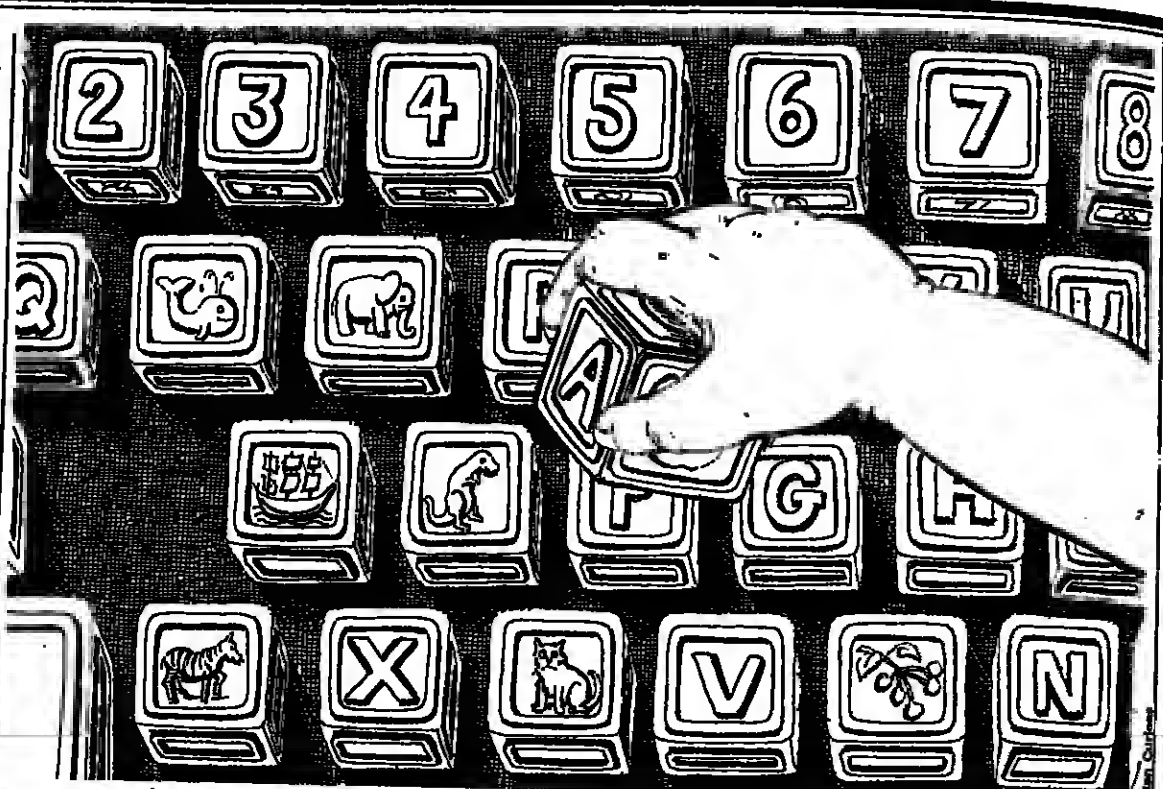
The advantage of this approach is that the actual code for the days between procedure. Rather, it refers to it only by name. Thus, anyone could modify this code without any other program (or object) which uses the days between message having to be changed.

Moreover, many people are familiar with the problem in Basic or Pascal wherein a procedure which adds contents of two arrays, element by element. Since how to carry out a given message is stored in each object, different kinds of objects can store different kinds of implementations and thus eliminate the need for procedure names like array add, height add, points add, date add etc. In each case we just send the message add (or even just +) and leave it to the object to decipher our meaning.

Similar objects belong to what is known as a "class" in Smalltalk. In fact, for fairly obvious reasons of computational efficiency, the methods for similar objects are kept in their class definition. The classes which come supplied with Smalltalk can be modified and/or extended by the programmer. New classes can be defined as sub-classes of existing ones, in which case all objects of the sub-class inherit the properties of the containing class. The body of a method itself looks very similar to a program fragment in any structured language like BBC Basic or Pascal.

The book *A Taste of Smalltalk*, by T. Kaehler and D. Patterson (W.W. Norton and Co, New York, 1986), is a helpful guide for coming to grips with the language. Also, the London-based company, Smalltalk Express (tel: 01-200-0220), are selling a *Little Smalltalk* program for XT versions of the IBM PC, the Atari ST, the Apple Macintosh and the Archimedes machine. You get the software free but have to buy the accompanying book at £32.50.

Mike Thorne teaches at the University of Cardiff.



C is for...?

TONY SCOTT

A significant aspect of the arrival of the more powerful microcomputers in the educational market place is the support being given to a specific language (C) and a specific operating system (Unix).

The "New Technology for Better Schools" initiative, which was announced recently, limits the purchase of computers from education support grants to those which are open ended and MS-DOS-compatible, and looks towards C and Unix capabilities. Indeed, it is suggested that educational programs should now be written in C for the same reasons that it is expected that defence programs should be written in the computer language "Ada" - in order to achieve standardization, to enable better and closer contractual management of software production and to get the best out of contemporary computer systems in the area of application.

Teachers who are only encountering the 16- and 32-bit computers for the first time may find it difficult to understand why others feel it necessary to move on from the world of Basic and proprietary operating systems to achieve these objectives. After all, there are some very fast Basic interpreters now on Acorn Archimedes, RM Nimbus, IBM PC and look-alike machines. BBC Basic itself is available for some of these machines too, and not just those with the Acorn badge.

Basic has been a blight, some would say, on the development of computer education. The problem is that its authors, Kemeny and Kurtz, did such a good job when they invented a system for teaching Dartmouth College students the rudiments of computer programming, that Basic became an end in itself. People forget that it was a device for supporting the teaching of Fortran and other high-level languages and started using it for real, even if it was not suited to the commercial world of limited space and limited time to run programs.

Why should one bother, after all, with the paraphernalia associated with high-level languages (compilers, editors, loaders, libraries) when Basic provides you with a total environment? The teacher-programmer was happy to write even quite large programs to be processed slowly by a single microcomputer, and to regard operating systems as collections of calls to machine-code routines which should have been directly accessible from Basic anyway. The lack of restrictions to avoid messy (lazy) programmers data structures or program structure, this malady led to computer programs which are operating systems can quite simply be transferred to the new machine.

Unix is an operating system which people either love or hate, with the loyalty of the devotees sometimes bordering on the fanatical. The Unix community, for such as they are, will go to great lengths to help newcomers come to grips with the system and its active electronic conference, USENET, within which detailed questions are asked and answered, to supplement the on-line manuals and teaching aids often provided on the

larger, time-sharing Unix facilities. (There are about 8,000 Unix installations worldwide.)

As well as its portability, a successful computer software system needs to provide its users with vocabulary and style in which to talk and think easily about data structures and algorithms. Part of the philosophy adopted by Kernighan and Ritchie, the authors of C, and which the Unix environment also reflects, is that programmers are able to write short programs, often single procedures, and build up a repertoire of useful functions which should be shared with other users through a library mechanism. Very often these libraries, or modules within them, are placed within the public domain.

The sharing of modules and programs is enhanced in Unix by the ability to direct the output of one program to be the input of another, rather than sending it to a screen, file or printer. This means that named sequences of short C programs can be added as functions to the 200 or so which comprise the basic system.

C programs can be very efficient, so there is no need to get involved in the assembly language of a particular computer model. Also, because the language is designed from the outset to be compact and not dependent on any specific machine, the handling is not a point of the language, or are input and output. These areas are handled through the mechanism of a "standard I/O library" which is implemented fairly consistently across sites and versions.

Writing in C, or reading what someone else has written, will obviously not be so straightforward as writing in Basic, with its line numbers, built-in editor and specific data structures. The Basic programmer will probably find it easy to adjust to the differences in syntax (A=A+1 in Basic, A+=A in C; A=A+B in Basic, A+=B in C) but harder to adjust to the more direct control over the location of data in the machine. C allows programmers to build up their own common data structures, and to write reasonably straightforward code to handle those structures.

The C approach to the creation and use of data structures and tools fits well into the educational environment, and the next few years are bound to see the production of sets of modules for handling inputs from mice and concept keyboards, for the management of window environments, and for the sophisticated analysis of user responses.

There can never be a universal computer language which is "the best" solution no matter what the problem. nor can there be such a thing as the "ideal" operating system. The C/Unix combination, however, offers many advantages as a *lingua franca* in educational computing.

Tony Scott is advisory teacher for information technology, for the London Borough of Croydon.

For Vicky, Helen and Rachel are three eight-year-old girls. A year ago, while they were in the last year of their first school education, they had their first encounter with a computer. During that time we observed their achievements, and those of their friends, as they investigated the computer world of Logo through the floor turtle and, later, through screen turtles.

The floor turtle is a small robot, a cybernetic animal, which can be controlled through the computer and Logo is the computer language which children use to instruct and communicate with it. At first, these instructions are very simple and involve making the turtle move across the floor in a straight line or making the turtle pivot so that it is facing in a new direction. The first introduction to the turtle for Vicky and the other children is to make it move by giving simple instructions such as FORWARD or BACK. The turtle, like people, needs to be told how far to move forward or back. The children intuitively identify with its physical nature and often play at "being turtle". They program each other to behave like the turtle and thereby further their mathematical learning.

In Paper's words, the turtle is "a good carrier of learning mathematics with one's body". Later on, as the children's understanding of the relationship between their own physical movements and the rules of formal geometry grows, they turn from the concrete experience of turning on the floor to programming abstract turtles on the computer screen.

For Vicky, Helen and Rachel the world of school geometry is still uncharted and the language of degrees, right angles and polygons is completely unfamiliar. Formal geometry would not usually be introduced to them in their school mathematics for another two years at least. Yet as we will see, C, and which the Unix environment also reflects, is that programmers are able to write short programs, often single procedures, and build up a repertoire of useful functions which should be shared with other users through a library mechanism. Very often these libraries, or modules within them, are placed within the public domain.

One of the girls' knees down to look at the turtle as it examines it and explains that it has a pen inside it. Immediately they demand to know what the command to drop the pen is. This time FORWARD 5 produces a strong black line on the floor paper. The distance between the turtle and the edge of the paper. It is necessary to program it to turn right. Go left, says Vicky. Although they have been programming the turtle to go forward in large steps such as FORWARD 30 they revert to their turtle pivots, but only slightly. The command LEFT 7 and again the turtle turns only a small amount.

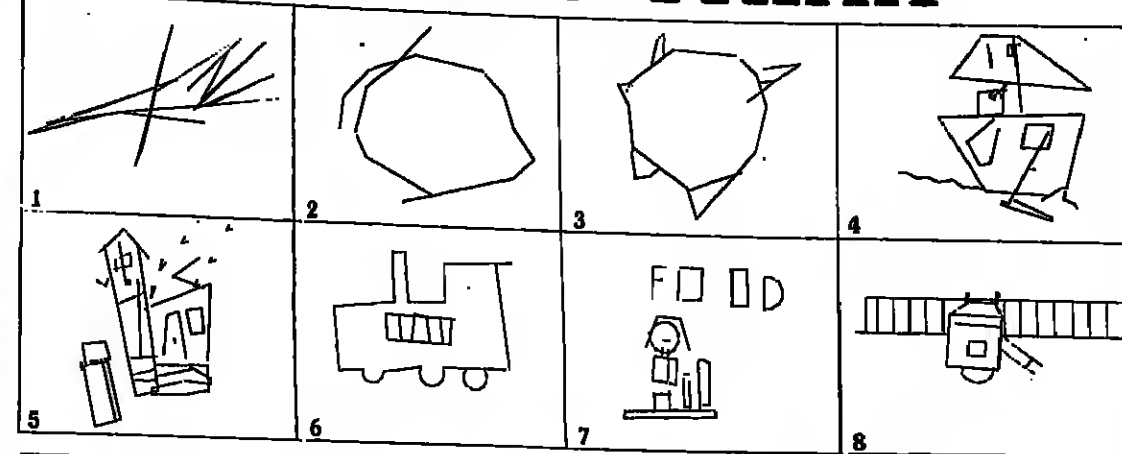
For some reason, they do not feel comfortable about trying any of the turtle's forward or backward movements. The rule is as if, for the moment, the rule which they have established for forward motion is not to be applied to the turtle. The number 30 preceded by the command FORWARD moves the turtle a long way, the same logic need not necessarily be applied to turning.

Although the children could repeatedly tell the turtle to turn left 5 degrees until it is facing across the paper again (and doing it this way would have given them a different insight into turtle geometry) they chose, instead, a different solution. After turning the turtle slightly to the left, they type BACK 30. This strategy then forms the basis for moving the turtle until, almost at the end of the paper, it is almost at the end of the paper. The turtle, one of the girls' commands it to turn left 70 degrees. Their turtle drawing (figure 1) reveals a common occurrence in children's first experiences with Logo and that is the need to experiment with the turtle and to take control of it. They must therefore be given time to discover what they can make the turtle do, to become familiar with its world and to explore its physical abilities.

Two days after their first encounter with Logo, Vicky and her two friends have their second session with the computer. This time they set themselves a problem - to program the turtle to draw itself. It is going to be a view of the turtle from the side (figure 2). They start on the left side of the paper and move forwards. The next action is an angle turn which is much more adventurous than anything we

LANGUAGES

I'll call it 'Think'



DAVID HAWTHORNE, JACQUELYN WALTERS

saw in their first session.

As they continue to draw the outline of the turtle each line increases in length and a spiral begins to take shape on the paper. To the girls, however, it is the shape of a turtle not a spiral.

They are quite precise about the distance of each line and the angle of each turn, programming the turtle in stages, so that it arrives at its intended position. Their sense of control has increased dramatically since their first session. At one point, they program the turtle to go forward and they reverse it until they are happy with the length of the line. Their conversation, which is full of phrases like "Make it turn more", "Let it go to 10" and "Back 20", reveals an increasingly authoritative attitude towards the computer and a confidence in themselves as motivators responsible for each action.

When they have successfully drawn the outline of the turtle they are unhappy with the results. "It didn't work properly," they say and announce that, the next time, they are "going to improve it". We do not ask them what they mean by "it" but it is unlikely they mean the turtle. It is more probable that they are referring to the idea of a program.

The concept of a program and programming has not been mentioned before and this is one of the first clear indications we have that they are aware of the nature of communication between themselves and the computer.

For Vicky and her group the next opportunity to "improve" their turtle shape comes 12 days later. Their first problem is where to place the turtle on the paper to begin drawing. The discussion is prolonged and at times heated. Each of the girls has her own mental picture of the new shape and Vicky, who comes across as being the most confident about her idea, persuades the other two to adopt her shape.

Instead of drawing another side view of the turtle, they will attempt to program a view from above (figure 3). They instruct the turtle to draw the body of the turtle as one distinct and enclosed shape which has strong similarities to their previous effort, including the same stubby nose.

This time, however, they have higher ambitions than just drawing round their shape. By lifting the pen and programming the turtle to a different point on the turtle shape's body, they draw the four legs. When the last leg is finished they tell the turtle to lift its pen and move across to the nose. They take a long time manoeuvring it into the correct position.

When all the girls are agreed, they draw the eyes by dropping and lifting the pen so that a blob appears on the paper. Helen wants to make the eyes bigger. Before she can articulate the concept of curves the school day ends.

At the start of their next session, some 12 days later, the girls decide to program a sailing boat (figure 4). One reason for drawing a yacht apparently is "because it is straight lines: not curves". Clearly, their thoughts about the turtle as a circle has not been the turtle that either it is impossible to draw curved shapes or that it is too difficult.

Their previous drawing showed an intellectual progression from a continuous line drawing to a shape built from several distinctive elements. Whereas the turtle shape had three elements (the body, the legs and the eyes) the yacht has at least six.

It is not only a very much more complex shape, it is also a bold and adventurous program. Several elements such as the anchor and the porthole are drawn inside other elements. In this case the outline of the yacht's hull. The construction of turtle shapes from separate elements creates strong foundations for procedural thinking. Later on in the year, some of the children will begin to write their programs as procedures and to embed procedures within procedures.

Within the yacht shape there are also what appear to be three square shapes, the zero in the sail number, the anchor hole and the cabin on the deck. (None of the angles in these "squares" is 90 degrees, the squaresness has been achieved by turning the turtle until it is pointing in the right direction.)

In the cabin there is an unfinished window which has six sides and has a crude likeness to a curve. This idea may have come from the spiral shape of the turtle in their first Logo session. The girls make a mistake in its construction and so they change its meaning. Instead of being a cabin, it becomes the first of the girls' heads looking in on a journey. Thus, in one imaginative leap, a mistake becomes an idea.

It is one of the hallmarks of Logo that those notions which children define as "mistakes" can be positive and creative. There is no feeling of failure or rejection.

In the girls' next turtle session, which lasts four hours, they draw a church (figure 5). Recalling the difficulties they had agreeing a shape for the yacht, Vicky draws a rough design to show the others what she has in mind. Like the yacht, the shape of the church turns in complexity from a series of shapes. A door is added, and then a door handle. Steps lead up to the door, there are gravestones in the foreground. Birds fly around the steeple in which there is a bell.

While constructing the bell, the girls discuss the possibility of drawing a curve. Although Helen says she can't see why they shouldn't be able to do it, nobody knows how.

During this long session, the girls' stamina flags and revives. At one point, Helen and Vicky wander off and discuss what they hope to get for Christmas. Rachel remains working on the computer, showing a confidence and a concentration we have not seen before. In any of her class work. Towards the end of the session, Vicky and Rachel and Helen agree if she can go and do her maths. Afterwards, Rachel and Vicky refuse to talk about their picture until they have collected Helen. Although the three girls no longer seem to work well together, their identity as a group remains.

The three friends are finding it increasingly difficult to communicate. Each girl wants to develop her own ideas without reference to the others. Most of the decisions are taken without discussion and the two who are observing are left to interpret what is happening. Consequently, there is a growing antagonism at the computer. Although they agree to take equal turns at the keyboard, each is loathe to relinquish it.

The need for each child to work on her own, through choice, is apparent. Our former ideas about the importance of group work and group discussion need now to change in recognition of the evolving needs of the three girls. Although most of the children in the class enjoy being able to exchange ideas, several of the girls prefer to

work alone, choosing company only when they wish to demonstrate their ideas or discoveries.

It is interesting to see how quickly programming becomes a subjective and highly personal activity. Like all creative work, it belongs to the person who makes it happen and like all learning, it is highly individualistic. Logo encourages children to be creative; it is essentially an environment for thinking and for expression and people who are creative are more likely to be independent in judgement and to go against group opinion. They are also more resourceful and more adventurous.

For Vicky, the freedom to decide that she would prefer to work alone means that she can concentrate on her ideas about how curves might be constructed. In her next work, which is a drawing of a train (figure 6), she produces an acceptable solution to the problem of the train wheels by instructing the turtle through a series of 30 degree angle turns. She will use her

newly formulated theory about curves when, later, she decides to draw a curve, a letter "D" in the word "FOOD". She then extends her theory to produce the head of a girl in the form of a circle by programming the turtle to draw a 12 equal-sided polygon with an angle turn of 30 degrees (figure 7).

Her next piece of work, which is done with a screen turtle instead of the floor turtle, is a drawing of a gipsy cart with a fence behind (figure 8). When she comes to drawing the wheel, she adapts her theory about curves to produce a much finer curve. The outline of the carriage is a perfect square, as is the window inside, and the fencing behind is a regular pattern of fence poles at 90 degree angles.

While the fence, the curved wheel and the squares are programmed in small steps, Vicky has unconsciously created an opportunity for using co-ordinated loops within her programming. At a more sophisticated level, there is an opportunity here to use variables, a need which Vicky has not yet defined. By creating these opportunities, she prepares the direction and pace of her own learning.

By working with the turtle abstract mathematical ideas are made real to children. The physical experience of constructing programs for the turtle not only helped Vicky establish a highly personal involvement with mathematics and aesthetics but it enabled her to become conscious of her thinking. Her awareness of herself as a designer and inventor of ideas was most clearly expressed when, in her last term at the infants' school, her work took her into the powerful area of building and embedding procedures. She had planned to make her very first procedure drawing a circle on the screen. As she sat down at the computer, she paused before giving the procedure a name and, turning round, said, "I'll call it 'Think'".

David Hawthorne is a former educational computing development officer for Buckinghamshire. Jacquelyn Walters teaches in Chalfont St Peter's First School.

Viglen

The Perfect Partners

AUTUMN 1987

EDUCATION OFFERS

VIGLEN

WINCHESTER DRIVES

Capacities in stock

20Mb - £499	Full Acorn ADFS compatible
28Mb - £504	Available also at no extra cost for connection to SJ RESEARCH FILESERVERS
40Mb - £589	
58Mb - £728	

Can be also used to back-up Acorn Winchester using special Viglen DUCK connector or directly through Econet system. TAPE STREAMERS available for Acorn and Compatible Winchester.

FROM ONLY	£599 + VAT	COMPLETE COMPUTER SYSTEMS
		ACORN MASTER 128
		COLOUR MONITOR
		800K DRIVE

only £97 + VAT

Over 200 different BBC Computer related products in stock. Please write or phone for full price list.

ORDERS:- Please send your official order to VIGLEN LTD, UNIT 7, TRUMPERS WAY, HANWELL, LONDON W7 2QA. TEL: 01-843 9903

Carriage and Insurance: 1 item £6.98 multiple items £10. VAT: UK Customers please add 16% VAT to total cost. 12 months warranty on all products. Please quote TES 10 when ordering.

TWO NEW TECHNOLOGY TITLES FROM ALBSU

BASELINES

"Baselines", developed by Cambridge Working and Development, is a package of computer based and written material intended to provide guided self-instruction in basic skills. It consists of a disk (usable on BBC and IBM), a set of user's notes and a pack of written material. The aim of "Baselines" is to help adults appreciate their own skills and confidence in reading, writing and number. It can form one element in initial assessment, encourage personal autonomy, and explore the further uses of computers in adult basic education. Price £18.00 plus postage.

COMPUTERS AND INFORMATION TECHNOLOGY

"Computers and Information Technology", produced as part of an ALBSU-sponsored Special Development Project at Farnham College, Brighton, provides a series of programs designed to increase familiarity with how computers work and behave. It presents support material which can be used to provide additional resources and to promote discussion on the role and effectiveness of computers as tools for learning and broader issues associated with life in a new technology age. Some of the possible target groups are given in the introduction. Price £10.00 plus postage.

Both titles are available from: Adult Literacy and Basic Skills Unit, Kingsbourne House, 229/231 High Holborn, London WC1N 7PB.

ALBSU

Adult Literacy & Basic Skills Unit

BOOKS

Intelligent CAL systems

Hitting the target

MIKE THORNE

What upset some researchers about the Microelectronics Education Programme was that, during its short lifetime, it couldn't wait for its decision making or products to be informed by the results of research. As we do it now, research isn't able to keep up with the speed of technological change unless very long-term projects are undertaken. Now that MEP has gone forever and the Microelectronics Education Support Unit has taken over with a brief to benefit from what exists rather than to create afresh, the responsibility for innovation is firmly at the hands of the researchers. And they are all talking about "intelligent" CAL (computer assisted learning).

Intelligent CAL (ICAL) systems usually embody components representing the content to be taught or learned, a teaching strategy, and a mechanism for understanding what the student does or does not know. By dint of verbal trickery, Microworlds like those you can create with Loga are included too. In that case you are provided with an environment in which you can study a system as intelligently as a scientist studies the physical world. Microworlds do not teach and they do not provide instruction.

As someone once said, "If you want to become an expert archer, you practise archery. Suppose you shoot an arrow at a target and the arrow is wide to the left. The target doesn't yell 'Hey, mate to the right!' Rather, you judge the efficacy of your procedures by their results and modify them accordingly."

This nice characterization of Loga-like systems is contained in a new book which ought to be on the shelf of everyone interested in ICAL: *Artificial Intelligence and Instruction: Applications and Methods*, edited by Greg Kearsley and published earlier this year by Addison Wesley. It contains a dozen chapters, mostly by American researchers, detailing some of the most exciting US work in the field, by no means as alien to the UK educational culture as you might think. There are chapters on the training applications of ICAL, on how to construct ICAL systems and one disappointingly dry survey (chapter two) on whether ICAL is something new or not. However, chapter three sets the standard for the rest of the book in its exemplary exposition of *Proust*.

Proust is a computer program which can be used to find errors of logic in Pascal programs written by beginners. Thus, the input to *Proust* is a student's attempt at a programming exercise, the output is a list of all the "bugs" the attempt contains together with suggestions as to how each bug could be

corrected - and even reasons why the student made that error in the first place. Just in case this sounds too good to be true, *Proust's* Yale University-based authors claim that it is capable of identifying correctly all of the bugs in over 70 per cent of the programs students write. The only small print, so to speak, is that the problem the student works on must be the one known to *Proust*. (Not that this places any major restrictions on the sort of exercise beginners are normally given.)

Proust was originally written in a dialect of the Lisp programming language and contains roughly 15,000 lines of code, originally designed to run on the powerful VAX mini-computer. More recently a cut-down version has been written for the IBM PC. The cut-down version is restricted in that it cannot recognize a certain variety of especially tricky bugs.

Given that a particular student may solve a programming problem in any one of a number of ways, and that his or her program may possibly contain several different types of bugs, how does *Proust* work? This is where the "intelligence" comes into the CAL: *Proust* knows about each programming problem and knows how to write programs of the type it works with. It can therefore make hypotheses about the method a student programmer is trying to use and, if there is a bug, use its database of common bugs to try to explain the error.

The ultimate goal of *Proust's* developers is to build an entire programming curriculum around it, which gives programming assignments to the students, reads over their work, and gives them helpful suggestions. Extending the concepts of *Proust* to parts of the non-programming curriculum has yet to be attempted. When, as in programming, the students' goal is very well defined, this would not appear to be a comparatively big step. But musing the intelligence inside a computer which will set and mark an English essay for a class remains the philosophers' stone.

One "unstructured" domain in which intelligent CAL can help, however, is that in which students have to make arbitrary choices. For example, when asked in mathematics to transform

$$\tan x$$

$$1 + \tan^2 x$$

into an expression involving only sines, which of those substitution tricks none of us can remember after leaving school do you use?

Also in Kearsley's book, David Sleemum of the University of Aberdeen describes three systems which encourage students to explore different possibilities when a well-defined algorithm exists for making a choice. For example, there is no obvious "algorithm" in finding values which the letters S, E, N, D, M, O, R, Y stand for

SEND MORE MONEY

would represent a correct addition sum with the letters replaced by corresponding values. The solution must be obtained by trying the possibilities, though the intelligent solver will realize quickly when a possibility is leading to a dead end.

Sleemum calls a system which enables students to think more readily of all the possible transformations appropriate to the task and which persuades them to systematically explore all possible routes to a solution, a Problem Solving Monitor (PSM).

One sort of shell - *Micro Search* - which allows Problem Solving Monitors to be constructed easily has been implemented on an IBM PC using the Lisp programming language. One of its example applications, users had to find the shortest route from a starting point to a destination through a maze of obstacles. The user is given a list of possible transformations and asked for one to be selected. The list was:

1. TAN X → 1/COT X
2. 1/(COS X) → A * (SEC X)
3. COT X → (COS X)/(SIN X)
4. TAN X → (SIN X)/(COS X)
5. A + A → 2 * A
6. 1/A → A
7. A/1 → A
8. A/(B/C) → (A * C)/B

Having selected a transformation, if that particular one wouldn't do the trick, the PSM could be asked to display what the net result of working with that one would be.

As a next stage in the research, Sleemum would like *Micro Search* to be tried out in several classrooms under controlled conditions to determine the relative effectiveness of teaching trigonometric transformations conventionally versus making the search explicit. In such an experiment, *Micro Search* might be used as a teacher's demonstration aid or by the pupils.

From these few examples, it least, it may be inferred that ICAL research isn't after all, a million miles away from the chalkface. And now that the role of progress has slowed post-MEP, it may be that those in favour of grassroots development of CAL and the more traditional researchers will come to distrust each other rather less than TV programmes like *The Learning Machine* indicated.

Curate's eggs

Microcomputers and Education: The 86th Yearbook of the National Society for the Study of Education - Part I. Edited by Jack A. Culbertson and Laverne L. Cunningham. University of Chicago Press £18.75. 0 07 75762.

This is a hefty tome with a plain cover, close print and a textbook feel about it which is likely to deter all but the most committed reader. For the most part the text lives up to the promise on its cover.

The chapters, all written by different authors, are presented in three sections. The first, entitled "Computers and the Education Program", is by far the most interesting. For example, chapter two analyses the curriculum change likely to be brought about by the use of micro in education. The vision of the impassioned advocates of computer-based education are starkly contrasted with the realities prevailing in an education system which is inherently conservative. While this account is based on America, it happens to be a mirror of what is happening in Britain.

Chapters three and five are also very stimulating. Chapter three is the report of a programme of research exploring the learning outcomes and

changes to classroom interactions, management and assessment resulting from computer use. In chapter five the authors consider whether it is possible to "teach" higher order thinking skills and whether the micro can contribute to this teaching. However, the rest of the book is disappointing, clearly lacking in relevance to educationists in Britain. The whole is thus something of a curate's egg, although with only three good chapters out of 13 the curate is likely to go pretty bungy.

The Impact of the Computer on Education - A Course for Teachers. By Seamus Dunn et al. Prentice Hall International £10.95. 0 13 453341.

This book is intended as a class text to be used on courses for teachers with some experience of educational computing who wish to explore some of the issues in greater depth. Each of the 14 course units consists of an introductory text followed by a practical exercise very good material. While there is some exercises, it is unlikely that the book will be used as intended as this would mean the computer class data of

books. In the current economic climate this is unlikely to be undertaken by either i.e.s or colleges, the main providers of teacher education. However, a single copy would be a useful resource for tutors.

Three aspects of educational computing are examined. Four of the chapters address educational issues which arise directly from the impact of the new technology on society, while the second section examines general educational issues such as the impact of the computer on the curriculum. Finally, the practice of education is examined with chapters on software classification, Logo, data handling, and word processing.

As in the case of many other books on educational computing this book would have been far more useful four years ago than it is today. At that time many of the providers of teacher education in this field were barely one step ahead of their students and would have welcomed a ready-made course. Today, however, there is a far greater body of experience and expertise among tutors in colleges and i.e.s and many will prefer to plan their own courses, feeling that they could do better than this book does on topics such as data handling, word processing and software classification.

HEATHER GOVER

BOOKS

Flexible distance

The Computer Revolution in Education. Edited by Anne Jones, Eileen Seaton and Tina O'Shea. Harvester Wheatsheaf £11.95. 0 7108 1178 0.

This is another book from the now well-known group at the Open University consisting of OU staff, researchers and visiting lecturers. It is concerned with the particular role new technologies, both readily available and promised, may have in supporting distance learning. In particular how the technology can be used to deliver adaptive material to students - a field of undoubted interest to the OU.

The technologies considered range from the now, almost humble, radio through the computer to video disc and also includes the combination of technologies to produce a supportive learning environment at a distance. The writers provide insights into systems such as SOLO, AURAC, CYCLOPS, OASIS, MERLIN and OPTTEL. By the nature of such a book only brief details of each system can be given but references are provided for further study. As usual it has proved hard to strike a balance between giving a flavour of the systems without having to resort to technical descriptions. It is probably unfortunate for many readers that the first chapter launches into programming examples whereas the more accessible chapters concerning delivery systems occur later. The occasional inclusion of screen images is a great help in giving a picture of the learner's environment.

Although only one short chapter considers directly the needs of blind students, it is a hopeful sign that attention is being paid to the needs of physically handicapped students for whom the current emphasis on distance learning starts to satisfy a long-term need. Concern is expressed at the potential of interactive video to restrict rather than extend the learning environment. This is expressed both as a function of the medium itself, currently unalterable once made, and of the software used to drive it.

The chapter concerning knowledge representation in educational software consists of a systematic study of the program CLIMATE. For many readers this will be the only software considered in detail to which they have access. It is a pity that a more recent study and also that the chapter ends on the new all too familiar note of pessimism on the possibilities of developing more sophisticated software.

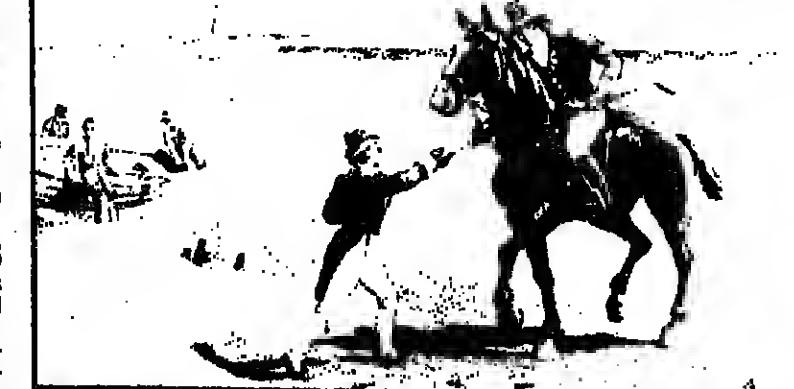
The work of the Open University in distance learning and technology is significant. It is always valuable when such a group publishes its work so that the wide educational community gains access to current ideas and approaches. Although this book is unlikely to be widely read by practising teachers it will be very useful to those involved in the detailed study of the applications of technology to distance learning and centre-based learning. It will also serve as a valuable marker for the late Eighties on our hopes and aspirations.

Aspects of Educational Technology XXI: Flexible Learning Systems. Edited by Fred Percival, David Craig and Dorothy Buglass. Kogan Page £22.50. 1 85091 220 3.

The 21st annual Educational Technology International Conference (ETIC) was held in Edinburgh in April 1986. This book contains the proceedings, consisting of 72 papers packed into 429 pages. The aim of the conference was to consider learner-centred approaches and the role of technology. Although the event attracted participants from some 20 different countries, the papers relate generally to relatively local events with some 38 contributions from England and 21 from Scotland.

The range of topics covered is tremendous, from the primary classroom in the offshore oil industry. At a time when education and training are looking to each other for ideas it is beneficial that works from groups who at opposite ends of the spectrum are available in one volume.

Some of the papers are descriptive in nature, presenting, briefly, an example of a particular training structure. These are frequently designed to suit a particular need. So we have details of schemes for technician training in computer-aided engineering, training in electronic banking, employees in the motor industry, the glass industry, training in the Atomic Energy Authority, and training pilots in combat skills.



High-speed communications days gone by: an illustration from Peter Bishop's 'Do It' introducing Information Technology. This practical course for secondary students is built round a series of activities (Nelson £3.95. Teacher's guide £2.95).

The majority of papers are concerned with the general issues concerning flexible learning, and technology purely has a role as a delivery mechanism. The Open Tech is well represented with some healthy discussion comparing expectations and reality. Papers are also presented on the actual design of materials to support flexible learning, notably the experiences of the National Extension College. Many papers present useful checklists for those designing courses of study.

Although the contributions from countries outside the UK are relatively few they do give valuable insights. For example, there are details of work taking place in Japan in teacher education, a Nigerian perspective on a long tradition of flexible learning, the

Bulgarian national programme for introducing computers into schools, the Canadian videotex system and a view from Iraq on the relative effectiveness of various learning media.

As with all proceedings of conferences the papers tend to be short and can only give a brief indication of work being considered. The main aim is undoubtedly to provide a record for the participants and others of the group's useful reference work far those involved in flexible learning and also may be of interest to others in terms of how "child-centred" and "learner-centred" approaches are now being considered.

JON COUPLAND

Basic high-spot

GCSE Basic Programming For You. By Stephen Doyle. Heinemann £4.95. 0 491 172861 4.

Introducing programming to computer studies classes is something teachers often love or hate. Many teachers view it with fear and trembling and have opted out completely, while others see it as the high-spot on the computer studies syllabus. It would seem that Stephen Doyle falls into the latter category.

His book *GCSE Basic Programming For You* definitely aims to put the fun back into programming. Many of the algorithms are witty and imaginative (for example, how to locate a lost friend), and the book is sprinkled with cartoons by Charles Rush which serve to break up the text while providing an amusing backdrop to the point being covered. In fact the whole layout of the book is inviting and leads itself to a "dipping-in" approach as much as a cover-to-cover perusal.

The first of the book's 34 chapters looks at the BBC keyboard and explains the purpose of the function keys. The last chapter deals with project work and offers some sound advice in terms of types of projects, timing the workload and using software packages as an alternative to submitting programs - all good stuff and thoroughly recommended. However, in his quest to capture the

interest of the average GCSE computer studies student, Doyle has devoted nearly 40 per cent of the text to graphics, (including 11 pages in full colour). Certainly BBC machines lend themselves to this emphasis and most 14 to 16-year-olds would find it an entertaining aspect of programming, but its value as a teaching vehicle is doubtful. One is left wondering whether such a concentration is not perhaps going over the top.

It is not until chapter nine that Doyle introduces statements such as "Read", "Input", etc. Before this the specimen programs and exercises consist, in the main, of "Print", "Mode", and "Draw" instructions. This is a novel approach and may be one worth trying. It is unfortunate, therefore, that the first part of *GCSE Basic Programming For You* is weaker than the subsequent chapters.

In these early chapters, internal documentation is thin on the ground, (despite chapter 20 being devoted to the need for good documentation). The very first specimen, "Program to try", involves an infinite loop (what ever happened to good programming technique?), and requires the poor non-plussed pupil to key in ("... taking great care..."), 20 lines of code with fairly a piece of pseudo-English to be seen. Perhaps the REB statement on line 15 should be amended to read: "A Program To Try Your Patience." Also,



Mr and Mrs Glan plan their dream home: an illustration from 'Revises Computer Studies GCSE' by Tony Reckham, e Letts Study Aid offering syllabus analysis, exam questions and advice on revision (£25.95).

the instructions given in this early exercises are at times ambiguous, for example, how is one supposed to "Underline the missing words"?

As the book progresses it steadily improves. The text becomes more explicit and the sample algorithms more imaginative. It is certainly a text worth considering for computer studies classes - especially those bored with Bishop - and could successfully be used with pupils of a wide range of ability.

JUDITH DOBBYN

Terms of reference

The Microcomputer, The School Librarian and The Teacher. Edited by James E. Herrig. Gove Slingley Limited £13.75. 0 83157 399 1.

Microcomputers in Library and Information Services. Compiled by Paul F. Buzan. Gove Publishing Company Limited £16.50. 0 360 03540 5.

Many school librarians and teachers will be looking out for publications aimed at encouraging the use of microcomputers as information retrieval tools. The above titles are aimed at such a market. *The Microcomputer, The School Librarian and The Teacher* is a fairly academic treatise covering the potential use of microcomputers in the school library. It is edited by James E. Herrig, a school librarian, and

The case history examples expound the advantages of introducing such a system and could well inspire other schools to follow suit. The book also offers some useful ideas for possible projects. However, very little information is given, for example, on how to overcome such problems as disc organization in a floppy-based system. Perhaps a more realistic appraisal of the work involved and running such systems might have been more useful to the average school librarian and/or teacher.

Microcomputers in Library and Information Services is a bibliography of specialist texts, covering the use of microcomputers as information retrieval tools in libraries. It lists over 500 references, selected either by author or by subject. It may well prove to be an invaluable

Getting physical

Physical Education and the Computer. By Mike Skinsley. The Ling Publishing Company, 162 King's Cross Road, London WC1X 9DH. £5.95. 0 900 98518 6.

For the uninitiated, it would appear that computers and physical education are worlds apart. Mike Skinsley's book, however, leaves one in no doubt that the two are not. It is an extensive, practical and worthwhile. The book is written by someone with a clear perception and deep understanding of computing in education which stems from extensive personal experience of using computers in a PE department. It is not a sterile exercise for those interested in academic matters; rather, it is a rich text full of practical ideas showing how the teacher may use the micro in his or her professional work.

Mike Skinsley has divided the text into a number of logical topics each of which is carefully illustrated with photographs, examples and computer print-out material. His style of writing

is crisp and down-to-earth and each chapter is concise enough to be read within the space of a lunch break. Topics include word processing, computer equipment, using databases, options analysis, stock control, sports data organization, fitness work, pupil profiling, fixtures and teaching. The book is completed with a useful glossary, list of software suppliers and other relevant information.

This is one of the very first texts to be published by the Physical Education Association of Great Britain. In this respect it is important to note that the National Association clearly recognizes the importance of microcomputing in physical education. It will go a very long way to inform teachers of these new developments and to stimulate their interest in computer technology. The book is exceptionally well printed and presented and is virtually a "give-away" at the price.

BOB SHARP

Further textbook reviews on page 29

Give yourself more time, less paperwork

School Administration
Pupil Records
Library Management
Database Work

Make your BBC work for you! Using Supastore you will store and recall thousands of records in seconds. Information which is virtually impossible to process by hand is sorted and cross referenced instantly.

Supastore makes you efficient. It does more than most other databases: it holds more records, is easier to use, is quicker to search and stores up to 250 fields per record.

At £37.50 Supastore offers excellent value for money.

Please send me Supastore at £37.50 + £5.63 VAT.

NAME

ADDRESS

SIGNATURE

NAME (Block capitals)

PRIVATE ORDERS - cash with order.

Postage Free.

Cheques payable to ESM.

ESM Dept 8, Duke Street, Wisbech, Cambs PE13 2AE

30 DAYS FREE APPROVAL

Across the Curriculum Packages from MEDUSA

MEDUSA is the curriculum development team based at the Microelectronics Education Development Unit (MEDU) in Lincoln. Our aim is to produce good quality curriculum material for schools and colleges at a reasonable cost.

Medusa Guides to the View Family - £9.95 each.

The four MEDUSA guides provide a easy to follow instructions on the use of the Acornsoft VIEW family of business applications software, comprising the VIEW wordprocessor, VIEWSTORE database, VIEWSHEET spreadsheet and VIEWPLOT graphics package.

Following introductory teacher's notes, sets of worksheets provide carefully graded exercises. Throughout the worksheets the emphasis is on "learning by doing".

Spreadsheets/Graphics Across the Curriculum - £7.50 each.

Designed to stimulate the use of content free software across the curriculum these two packages present sets of ten applications of VIEWSHEET and VIEWPLOT in a range of subject areas.

Each package includes a disc containing example files.

Getting Into Print - £10.00.

Recently MEDU has attracted a large amount of national publicity for its "Newspaper Days". Getting Into Print contains all the details necessary for you to organize and run your own newspaper day either as an in-service exercise or within a school.

Also included is a comprehensive review of the publishing techniques that can be employed using the BBC computer covering word processing, printer drivers, font packages and "desk top publishing".

Available from - MEDUSA, Bishop Grosseteste College, Newark, Lincoln, LN1 3DY
Tel - Lincoln (0522) 44713.

Orders over £50 may be placed using an official order. Cheques should be made payable to the Lincolnshire County Council. Free catalogue available on request.

SANYO SUPERDEAL OFFER

THE IDEAL BUSINESS/WP/TRAINING SYSTEM

SANYO MBC 555-2
16 BIT MICROCOMPUTER

TWIN 360K DISC DRIVES
128KB RAM (expandable to 256KB)
GREEN SCREEN MONITOR

ENHANCED KEYBOARD
OFFICE PRODUCTIVITY PACKAGES INCLUDING
WORDSTAR CALSTAR DATASTAR
MAILMERGE SPELLSTAR REPORTSTAR
MS.DOS 2.11 AND SANYO BASIC
1 YEAR'S MEMBERSHIP TO THE S.M.U.A.

ONLY £299.00 + VAT

FURTHER DETAILS FROM:-

CHURCHWAY BUSINESS COMPUTERS
LAUNDRY BANK
CHURCH STRETTON, SHROPSHIRE
0694 723919

NOVA-T
for timetable construction, now including
absence cover... £175 + VAT

NOVA-O
for options and class lists... £82.50 + VAT

NOVA-R
student information... £75 + VAT

Send for details to TIMETABLE SYSTEMS, 39 Somerset Road, Frome, Somerset BA11 1HD or Tel: 0373 63748.

Looking for the RIGHT Software?

You need the newly published 72 page

EDUCATIONAL SOFTWARE DIRECTORY

* Widest selection of programs - over 1,000 for the

* Full program descriptions, with screen shots

* Easy ordering and competitive prices

* Price reductions for bulk orders

* Free information on software trends

* Free information on software trends

* Free information on software trends

* Free information on software trends

* Free information on software trends

* Free information on software trends

* Free information on software trends

* Free information on software trends

* Free information on software trends

SOFTWARE

Building on the past and planning for the future

Seize the moment

ALASTAIR FYFE

The use of computers in schools is still in its infancy when considered in the context of the overall development of the curriculum in the UK. Nevertheless, there have been significant changes in this field over the last few years, particularly in relation to educational software.

About five years ago the emphasis was clearly on programs for drill and practice. The emergence of machines like the BBC micro, with its impressive colour graphics facility, made it possible to produce very attractive programs of this type. At that time, software was comparatively unexploited, written mostly in Basic, and were short enough so that 12 to 15 could be distributed together on a single disc or tape.

Since then the focus has been on different types of software. A wide range of simulation packages have been produced for use with different age groups and areas of the curriculum. Increasingly these have become more comprehensive in terms of both the computer software developed and the additional material produced to accompany it. Considerable amounts of time are devoted to the production of modern packages by professional programmers and teachers.

Today the emphasis is on making available to teachers packages which may include programs, teachers' notes, pupil worksheets and other useful material which they can adapt to meet their own needs. Increasing use is being made of "generic" programs such as word processors, databases and spreadsheets. Others reflect the need for teachers to be able to add alternative data or to control some aspects of the way children can use them.

These changes have serious implications for the way in which programs are written and for the machines which local education authorities will purchase for use in their schools.

The investment in teacher training and in the preparation of additional classroom resources, for packages such as *Quest* (AUCBE), is such that its lifetime is clearly going to be greater than that of the machine for which it

was originally developed. It is essential, therefore, that all software is now written in such a way that it can be easily adapted to new machines when they appear. Equally, authorities must consider the investment in this versioning of software which will be necessary if they decide to purchase different types of microcomputers for their schools.

The techniques for writing educational software to run on a range of different machines have been developing for some time. King's College (formerly Chelsea College) have been using standard libraries for the production of programs in Basic and Pascal for some years. Recently the Inner London Educational Computer Centre (ILECC) co-operated, initially with the MEP Software Unit and later with the Scottish Council for Educational Technology (SCET), in the development of a set of routines which will be available on the RM Nimbus, IBM PC and Acorn Archimedes machines and which will make programs using them extremely portable.

The natural extension of such work is to use it as the basis for establishing standards for the hardware and software aspects of systems which will be used as general purpose educational microcomputers. The need for such standards was expressed in *Microcomputers in Scottish Schools: A National Plan* (SCET, 1985) and the need to follow up its recommendations is more pressing as schools consider the possible advantages of machines such as Acorn Archimedes, RM Nimbus (PC and AX), Apple Macintosh, IBM PC, Amstrad PC 1512, Commo-

dore Amiga and others. The work done by ILECC and SCET is only part of what is needed for the area of graphics alone: other problem areas such as file handling, sound and the user interface still need to be addressed, but such a task is clearly beyond the resources of a single organization.

Central government funding and co-ordination will be necessary if the best possible use is to be made of the limited resources available. The worst thing which could happen is that a number of organizations attempt to deal with the same problems by duplicating their efforts in producing their own development tools. These scarce resources should be devoted to the production of new applications for schools.

It will be essential for different government departments to commit themselves to a programme of expenditure extending over at least three years.

There seems to be a fair measure of agreement about the problems faced by educational software developers. A group of representatives known as the Educational Software Developers' Forum (ESDF) meets regularly at the headquarters of the Microelectronics Education Support Unit in Coventry and has discussed these issues. Further, there is international concern about such matters. The Ministry of Education in Ontario, Canada, has recently published a draft specification for

microcomputers which will be purchased for Canadian schools at the end of the Eighties and into the Nineties. This document has at its heart the definition of a standard software interface which will allow the development of programs to run on a range of machines, so long as they meet the specification.

There are other benefits to be gained from the adoption of a more standardized approach to the provision of computer hardware and software for schools. One of the most striking developments in the computer industry in recent years has been the emergence of the Apple Macintosh system. The care which Apple have taken to deliver a product which people can use without being aware of the intricacies of a traditional operating system is an object lesson for all. Friendly tutorial packages and a consistent approach to program development through well-controlled environments makes the introduction of new programs a pleasure.

However, in spite of its many virtues, the Macintosh fails on a simple test. It is clearly a proprietary system. One of the most important lessons learned in recent years is that dependence on a single supplier of either hardware or software is highly undesirable, even if that supplier is one of the leading companies in the industry.

Our aim now must be to build on past experience, including the obvious advantages of the Macintosh system, and to define a non-proprietary environment which can be freely implemented by manufacturers and used by software developers.

For such an approach to be successful certain criteria will have to be met.

First, the exercise must not be so divergent from current practices or trends that entirely new products need to be developed. Existing or emerging standards must be used wherever possible. In this way past experience can be put to good use. The approach must also be attractive to the major companies already in the market. This applies both to the domestic scene, which must involve Acorn and Research Machines at least, and the world market, so that volume producers such as Apple, Atari, Commodore and IBM can be involved.

There are two other important ingredients. The first is a commitment to the exercise which should be reflected in a resolve to state carefully what is required and insist on it being delivered. Also, there is a need for better long-term planning on the part of central government towards expenditure in this area.

It will be essential for different government departments to commit themselves to a programme of expenditure extending over at least three years, so that private enterprises involved may be assured that at least there will be an opportunity to recover development costs through sales. Co-operation with other countries will ensure that there is greater choice for i.e.s in this country and wider markets for sales of hardware and software for UK companies abroad.

There is clearly an opportunity to take the initiative now. There is a fair degree of agreement among the organizations involved, particularly in software development, about the problems which need to be faced. The Province of Ontario has taken the lead by publishing their specification and indicating a willingness to collaborate with others. In England, Wales and Northern Ireland there is debate about the kinds of equipment which should be purchased through the education support grant system and in Scotland there is the National Plan which provides a framework for action. The opportunity is there. Will we take it?

Alastair Fyfe is the assistant director of the Scottish Council for Educational Technology.

SOFTWARE

Desktop publishing for primary schools

Cub reporters

all other features are accessed from pop-out menus. This makes the whole product easy to use, yet powerful within the classroom. The child can remove, add or alter, with only the final, polished version being kept at the end. A sketchbook can be kept on disc, in fact teachers will find that several are needed, and these can be accessed and viewed independently of the main program.

I have found junior children to be perfectly capable of using its facilities, and producing illustrations for project books which look very impressive. Printout can be made in any printer, although a colour one gives the maximum benefit. Shades of grey are just no substitute.

We have also produced a school magazine using *Fleet Street Editor*, although I have struggled with the worst possible configuration—a single 40-track drive. The result has been constant swapping across between the System Library and Laser discs, even though Flippies are used.

In this program, the discs are used to compose pictures which can accompany the text on up to eight panels. There are dozens of ready-made graphics on the disc, as well as extra sets of fonts and graphics, including a Walt Disney set. All the graphics can be easily modified, inverted or enlarged. A "zoom" facility even allows a small area to be expanded to alter details easily, and then returned to normal size.

The various facilities are accessed via a series of rooms, so that graphics brought in from the Library might be taken to the Studio for touching up, changes of size or direction, or mirroring. This product is then taken to the Copydesk, where text can be typed in directly, or imported. A number of fonts are available in single or double

height, and these are displayed on screen in virtual WYSIWYG fashion, although only one panel may be viewed at a time. Graphics can even be imported from other packages, including *Image*.

The *Admin Extra* disc adds some excellent utilities, including one which allows a panel to be printed out in various sizes up to A4, say for a poster. All these features are well explained in the very good User Guide. One problem with this piece of software, however, is that the children need a large amount of computer time. This is the kind of content-free, flexible software teachers welcome, but how can we devote the time to do it justice in the classroom?

Perhaps the solution is to find a superb program which achieves almost the same effect as *Fleet Street Editor*, although without the graphics. This reduces the swapping between discs to a minimum, and produces a desktop publishing package which really can be used in the classroom by children, with a minimum of teacher time.

Typesetter! from Sherston, allows normal or italic writing to be freely mixed with three sizes of headlines. The headlines do not appear on the screen in their true font style; instead, a shaded block accurately reflects the proportional size of each letter, although the Printroom does allow a true screen representation of the page to be displayed prior to printing out. Text is placed within boxes, as in most newspapers, and these can be joined to make interesting shapes. It can even be imported from other word processing packages, such as *PenDown*, *View* or *Wordwise*, in which case it will flow into the designated box. A range of word processing options are available, including justification of the text.

Magazines, notices and children's work can easily be made to look attractive and professional. I was particularly impressed by the pop-up menus. One particular advantage it has over *Fleet Street Editor*, is the fact that the children can scroll around the whole A4 page at will, rather than just one panel. The children loved its facilities and I loved its simplicity.

Fleet Street Phantom is designed to complement *Typesetter!* in a project on newspapers. It is an adventure aimed at 9 to 13-year-olds, who will also enjoy immensely the storyline, which involves a phantom saboteur at work in the local paper. The graphics are superb, and the reading level of the text is most suitable.

Desktop publishing can be tremendously successful in primary schools, even with the modest BBC micro and an Epsom-compatible printer. *Fleet Street Editor* includes marvelous graphic facilities and a greater choice of fonts, but at only a shade cheaper price, I'd be tempted to go for *Typesetter!* for the greater ease with which imaginative A4 copy can be produced, *Image* should be in any school using topic-based approaches.

All that's needed now is a really good word processor with a variety of fonts.

Image is available from Cambridge Micro Software, The Edinburgh Building, Shaftesbury Road, Cambridge. *Fleet Street Editor*, *Admin Extra*, *Fonts 'n' Graphics*, and *Walt Disney Graphics* are all available from Microsoft at Freeport (BS4382) Paulson, Bristol BS18 5BR. *Typesetter!* and *Fleet Street Phantom* from Sherston Software, 8 Court Street, Sherston, Malmesbury, Wiltshire.

Phil Taylor is a deputy head teacher in Essex, but these views do not necessarily reflect the policies of that county.

Happily ever after

DAVID MARSHALL

The Princess and the Ring Multimedia package with disc for BBC B/B+/Master 128, £23; BBC Master Compact £27.50; RML 480Z, £23; RM Nimbus standalone, £27.50; RM Nimbus Network £40; all excl VAT.

Can You Find It? For BBC B/B+/Master 128, £23; Master Compact/Nimbus, £27.50; all exclusive of VAT. Cambridgehire Software House, The Town Hall, St Ives, Huntingdon PE17

Even now there is relatively little software for children in the five to eight age range. That is why one of the latest packages from Cambridgehire Software House, *The Princess and the Ring*, is so welcome. Written specifically for five to eight, it can also be used with younger children who read well, according to the useful handbook, and quite a lot of back-up material is available.

First, there is a story cassette telling you the plot up to the start of the adventure. A wicked wizard has stolen

the magic ring because the King and Queen have refused to allow their beautiful daughter to marry him. The disc adventure allows the children to find the magic word, (it is either three, four, five or six letters), and discover where the ring is hidden. This is a traditional fairy story but none the worse for that. Its very familiarity is endearing for the young children for whom it is intended. Some of the paragraphs of the short story are particularly interesting—the wizard providing pieces of bacon for the crow delighted everyone. You can read the story from the booklet provided if you prefer.

There are large picture masters of all the characters with and without the story text. These can be coloured in and collected as the story unfolds. The flashcard masters allow sentences to be constructed with ease. The disc propels you forward. The graphics of the 10 picture screens are superb and the 10 information screens are easy to follow. Any child over five will thoroughly enjoy the adventure and the back-up work.

One thing that I decided to do with some older children who were designing newspapers was to interview the young children who had been employed in discovering the whereabouts of the ring and putting the smile back on the face of the Princess. These interviews had to be made into copy for their latest edition. *Typesetter!*

from Sherston Software was ideal for creating our newspaper, the *Anti-Trot Times*.

Can You Find It? is a content free program for children of six and over that allowed us to go even further with the adventure *The Princess and the Ring* and started. The kit is to create graphical databases on a 100 or 400 coloured square grid that allows you to pose questions on the screen that children have to answer. The first screen allows up to six colours to be used to make the picture or outline you require. In one of the files supplied the picture is the countryside, using different colours for marsh, woodland, grassland, water, heathland and sand. The children move the cursor to place different animals in their proper habitat. Their attempts are marked for their aptness, and at the end they are given a score.

To create the files is easiest itself. How the software can be used is limited only by the user's imagination. As the handbook suggests, a supermarket plan could be produced and the children required to put various foods in the most appropriate places. Or a general outline of the human body with the head, trunk, arms and legs in different colours—now put in the liver, kidneys and heart.

In our case, we made the country where the King, Queen, Wizard and Princess live. If you have completed the adventure properly you will be able



Children can colour in the picture masters

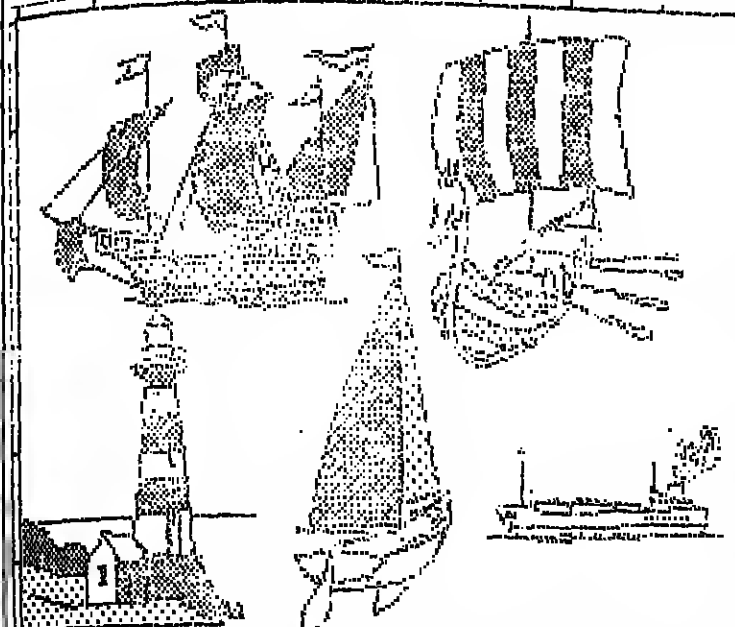
to put the characters where they rightly belong. It is an unusual type of database, but one that most schools would find a real boost to their current file making.

perseverance and collaboration in solving the problems. This was an activity that all could join—though for comfort, more than six gathered round one monitor can cause problems.

The only condition imposed was that the pupils should write up their experiences. This is quite natural, and now the norm for mathematics lessons which are looking ahead to GCSE. In terms of the processes which need to be actively encouraged in implementing GCSE approaches to mathematical education, this program is well structured and provides challenge, stimulation and motivation. The accompanying additional documentation which could easily and effectively be used to extend the program for class use.

despised for giving preference to one group or another. Perhaps this is one of the strongest arguments yet for computer networks in mathematics classrooms.

There is a trap to beware of for those who have used ILEA's excellent SMILES program, particularly the mystic rose. One pupil, without prompting wrote: "... we got it wrong many times ... we kept on getting it wrong because we forgot to exclude the number of edges." Even after pupils "escaped" *Martello Tower* continued to provide fresh stimulus since it then became a matter of pride to escape in a minimum number of moves. Strategic planning continues. Although the documentation suggests that the average eight-year-old should be able to complete the program, it is strongly recommended by my lower secondary pupils.



PHIL TAYLER

Many schools who have purchased a printer will probably have printed quite a bit of children's writing for wall display, and may now be wondering what else this expensive and sophisticated piece of equipment can do.

My school is fortunate in having two—an Epson LX80 and an Integrex Colourjet—and I have been using a variety of programs in my classroom to which a printer adds a whole new dimension. With a micro, disc storage, and a printer, schools have a basic desktop publishing system, which can produce a school magazine, worksheets, or displays.

A number of word-processing packages provide a choice of fonts. However, the real potential of a printer is exploited when the matrix of dots which normally make up the letters and numbers are instead used creatively to make up graphics designs. A

couple of superb programs take this facility to near its limits.

Image allows children to design and print colourful and sophisticated screen pictures. Input can be made from the keyboard or from a variety of devices, and the system can be initialized for the drive and printer types. Certain shapes such as circles or rectangles are available in any required sizes and these can be augmented by lines, rays or curves as pictures are built up.

All animal colours are available, of course, but some exciting possibilities are also provided by the Mixing Room, in which colour patterns can be designed on a grid. This pattern can then be used to flood-fill areas for very dramatic results. Several such patterns are provided on the disc in the point store, and these can be accessed and edited as required. There are also comprehensive cut-and-paste facilities, and text can be entered in a range of sizes, and placed in any direction on the screen, even upside down.

Apart from text entry, for which keyboard entry is obviously required,

ORT RESOURCE CENTRE
Hillfield Road
London NW6 1PY
Tel. 01-794 0029

Courses for Teachers • Lecturers • Administrators

- AS FEATURED IN THE T.E.S.
- Computer Aided Design
- Programmable Logic Controllers
- Computers in Control - Robotics
- Word Processing (IBM, BBC, Amstrad)
- Business Packages
- Desktop Publishing

NEW BROCHURE AVAILABLE

ORT is a major international independent technical and vocational education and training organisation operating in over 40 countries

KING'S COLLEGE LONDON
Centre for Educational Studies

M.Ed in COMPUTERS IN EDUCATION
DIPLOMA IN COMPUTER EDUCATION

The M.Ed is a part-time modular Masters degree offering a wide range of choices and flexibility of timing including the possibility of extending over four years.

The Diploma is a 1 Year full-time course for teachers and others from all subject backgrounds designed for those with little or no prior experience of computing.

Both courses cover a wide range of aspects of information technology and computer aided learning in all disciplines are taught by staff who work in the Computers in the Curriculum project.

Further details from:
The Educational Computing Unit,
Centre for Educational Studies,
King's College London, King's Rd.,
London SW16 6LA

Kingston College of Further Education

Information Technology
Development Unit

Staff Development Courses in
Expert Systems

• Full and part time courses available
• Suitable for teachers and lecturers from all branches of the curriculum



Kingston Hall Road
Kingston upon Thames
Surrey KT1 2AQ
Tel 01 549 8508

COMPUTER EDUCATION COURSES FOR SERVING TEACHERS

Award Bearing Modular Structure (CNA DPSE) 15 week course for primary, secondary and FE teachers

- Logo programming
- Information Systems
- Computers, Mathematics & Language in the Primary School
- Teaching & Learning with Computers
- Computer Education
- Microelectronic Systems
- Computer Science
- New Technology also available

HND COMPUTER STUDIES (Business Applications) (BTEC) for the more practical student with one 'A' Level

For further information contact:
Senior Admissions Officer (ActT887)
West London Institute of H.E.
300 St. Margaret Road
TW20 0HAM
TW1 1PT
Telephone: 01-891 0121 (24 hrs)

CASTLE PRIORY COLLEGE

Thames Street, Wallingford,
Oxon OX10 0HE. (0491) 37551

MICRO-TECHNOLOGY FOR PEOPLE WITH SPECIAL NEEDS

2-4 Dec Alternative Communication
7-9 Dec Severe Learning Difficulties
6-8 Jan Artwork
11-13 Jan Care staff & the Micro for Leisure
16-17 Feb Language Development
17-19 Feb Encouraging Creative & Expressive Writing
14-18 March Micro in Special Education

Further details from address & phone number above.

Computer Training for Teachers

at
—B.I.T.E.C.—
(Hastings)

Call: Nick Beeching.
0424-443866

PETER THORNE

Martello Tower
A Mathematical Adventure Game
By Anita Straker
BBC version from Anita Straker, Mundays, St Mary Bourne, Nr Andover, Hants SP11 6AY; £12 single copy; £65 for LEA licence; RM Nimbus version due out shortly from ILECC, John Ruskin Street, London SE5 0PQ; RML 480Z version available as part of the MEP Primary Problem Solving Pack.

Worksheets, £5 for one booklet; £50 for i.e.a. licence from Derbyshire Educational Software Centre, Derbyshire College of HE, Matlock, Derbyshire DE4 3FW.

Going up

"Why," said the Dodo in *Alice's Adventures in Wonderland*, "the best way to explain it is to do it." With this in mind, a group of first and second year pupils set to work on this challenging game in their spare time, initially with no documentation or explanation. From the outset there was much enthusiasm, and with a growing queue beating a path to the computer room door before Sam, the time it usually opened, it was necessary to adopt a booking system for break and lunchtimes.

On a day in June 1984 you decide to go for a walk. It says in the introduction to the documentation, *Martello Tower* involves the exploration of an old tower. Movement from room to room is achieved by solving various mathematical problems and puzzles. The ultimate objective is to find a magic password and use it at the appropriate time to escape. Little does one suspect the richness of the mathematics involved—especially with regard to processes.

Early on it became apparent that a calculator were (for some) essential tools. One or two of the more ambitious constructed their own maps—one pupil even suggested that everybody should remember the paths they had followed. But, no matter the ability level, there was a high degree of



What a head!

TIM PARKE

Quelle tête! and Jeu des ménages
ISBN 0 521 26401 4
40-track disc for BBC micros
£17.50 + VAT

Granville
ISBN 0 521 26404 9
40-track disc for BBC micros
£24.95 + VAT

Barry Jones, Fred Daly and Wac Brodzki
Cambridge Micro Software
Cambridge University Press, The
Edinburgh Building, Shaftesbury
Road, Cambridge CB2 2RU.

While two of these programs are clearly conceived in a sort of unreconstructed grammatical mould, *Granville* is one of the first to present language in a genuinely contextualised way, inviting the user into a realistic situation over which he or she can exercise a degree of control.

Quelle tête! is a game which enables the user to build up an individualized face from a range of features. Starting from the basic choice of male/female, the program leads one through a list of features - *eye, cheveu, nez, sourcil, nez, et so on* - drawing each one on the screen as it is selected. Each can then be modified by choices from a set of adjectives - for example, once *nez* has been chosen, the program offers *pointu, grand et petit*. At each selection, the appropriate sentence appears

at the bottom of the screen, with the position of the adjective automatically correct. Thus, after establishing that "Elle a un petit nez pointu", one moves on to other features, each drawn on the screen and consolidated by a sentence. A further facility is to be able to change one's mind at any stage, in the light of how the drawing turns out. Faces drawn can be saved for a subsequent session, and (a likely source of fun) a copy of the faces pupils have devised can be printed onto paper.

In *Jeu des ménages*, the aim is to instruct a removal man (Heng) in which rooms to place pieces of furniture he unloads from a lorry. The question *Où est-ce que je mets...* is followed by the name of the piece of furniture, and the user types in the name of an appropriate room. This has to be correctly spelled to be able to move on to the next item. And so on until the house is full, when a tune is heard. An incomplete "house" can be stored for a later class, and again there is the facility to print.

For both of these programs there is a full guide, which includes some ways in which teachers might wish to use the material.

Granville is a much more substantial package, and one can envisage some quite lengthy work being done with classes at a variety of levels. It is really a simulation game, with the user playing the part of someone who has won the prize of a five-day holiday, with spending money, in the seaside town of Granville. Thus one has to plan how to spend the time and money allocated, and this can be done on the basis of information, both about the town and one's own situation, that can be called up at any stage.

Basic choices are of the activities one would like to do and of the means of transport for getting round the town. The former includes distractions like *casino, cinéma, discothèque*; excursions; *loisirs* like *ball trap* and *plage*; *magasins*, and many others. Each decision entails others - for example, on how to travel, and on expenditure. There is a built-in running guide to how much money you've spent, and an indicator of how thirsty or hungry you feel (this fluctuates according to the kind of activity that has taken place). A further development is the journal, a running account of what you've done that day, which can be printed.

There is a lot more to be discovered in this program. My only criticism is that too much time is spent on transport - each choice of activity relentlessly demands to be followed by a journey, and those by foot and by bus seem to involve a whole town tour. But as a way of putting the learner in a realistic situation in which the language-use is natural, *Granville* is an innovation.

Science simulation programs

Electric dreams



J J WELLINGTON

Gravity Pack
ISBN 0 521 33975 8
4080 track disc for BBC B/B+/Master
£17.50 + VAT; Econet £32.50 + VAT

Work in Cars
ISBN 0 521 36389 1
4080 track disc for BBC B/B+/Master
£17.50 + VAT; Econet £32.50 + VAT

Netherhall Software/Cambridge University Press, The Edinburgh Building, Shaftesbury Rd, Cambridge.
Electric Fields
An Interactive Simulation
ISBN 0 563 21324 8
4080 track disc for BBC B/B+/Master, £12.95 inc VAT
BBC Soft, BBC Publications, PO Box 234, London SE1 3TH.
Mine Manager
ISBN 0 582 26878 8
BBC 40 track disc for £17.50 + VAT
C/O Longman Micro Software, Longman Resources Unit, 62 Halford Rd, York YO3 7XQ.

The term "simulation" seems to be fashionable, and as such has come to cover a variety of meanings. All of these programs could safely be described as simulations although their purposes and the manner in which they "simulate" are very different.

Gravity Pack is yet another science program from the Netherhall computer assisted learning factory which I have difficulty in faulting. I don't have shares in Netherhall but if they go public I'll be a keen buyer. The package follows their usual high standard in design, ease of use, well-written documentation, clear aims and objectives, and support material enhancing integration with other science work.

In this case, the worksheet support (seven in all) is stored on disc and can be directly printed on (say) a Bando or Gestetner master for easy duplication. Alternatively, the teacher can simply photocopy A4 worksheets for class use.

The program itself is divided into three parts. The first, *Monkey and Hunter*, may be distasteful to animal lovers but the booklet does apologize for any "anti-social" behaviour, and attitudes; it may induce.

any CAL simulation. The user has a similarly wide range of control in the second part, *Newton's Cannon*. A cannon ball is projected from somewhere above the "screen- Earth's" North Pole. Height of launch (H), velocity (V), and air resistance are the three controllable variables. Under certain conditions, such as H = 1000 km and V = 8 km/s in my simulation, the cannon ball goes into orbit. Once again, this part of the program is easy to use and offers many possibilities for experiment in "what-if" investigation.

Although the first two parts of the program are ideal for pre-16 physics courses, both now and in the future, the third part is only suitable for more advanced students. *Satellites* enable the motion of an object in "Earthspace" to be studied under the influence of a gravitational field. The moving satellite can be launched at different velocities, at different angles, and under different gravitational influences. This simulation is ideal for a first-year A-level (or A/S) course and completes a truly valuable gravity pack, whose full educational potential will take teachers and pupils a long time to realise.

The Netherhall *Work in Cars*, has its objective to simulate the motion of a car and the energy conversions undergone as it travels along a flat road, uphill and down a hill. The overall aim is to "promote understanding of the Law of Conservation of Energy" by using a situation which is "familiar to all pupils". My limited use of the program with pupils indicates that this will be difficult to achieve without extensive use of the worksheets designed to accompany it. As usual these are written to a high standard and can be easily reproduced or printed.

The program allows pupils to "design" their own car by specifying mass, its power in kilowatts, its level of friction (from 0 to 4 units) and its fuel capacity. They can then design their own route for the car, using the arrow keys to give flat stretches of road, uphill climbs or downhill drops of up to 45 per cent in gradient - not realistic, but then neither is the speed which may reach 160 m/s, over 400 mph. This might be called "simulation licence".

A few key presses and the car is sent along its route, while the fuel remaining (measured in MJ), the fuel current speed (in m/s), and the power "at the wheels" (in kW) are displayed on the screen. The journey continues until the fuel runs out, the car stops for lack of power or the end of the road is reached. At the end of the run, the time taken, distance travelled and energy used are displayed.

Using the program in this rather superficial way will give immense enjoyment to pupils in small groups and will allow a wide age-range to learn about fuel, power consumption and speed. However, to understand conservation of energy pupils will need to delve more deeply into the program by making calculations at different points along the car's journey.

The package allows more able pupils to take this simulation program into the realms of modelling. The equation governing the motion of the car is shown in the booklet and its limitations as a mathematical model are discussed. Ways are suggested for advanced students to test the accuracy of the simulation and thus appreciate the limitations of computer modelling.

Work in Cars is a most valuable package for pupils at a more advanced level: for studying the motion of a car under different conditions; to study and calculate energy changes; and to examine critically the nature of simulation and computer modelling - an important step forward which few other science programs have made.

Mine Manager is a simulation of a mine, and the user is able to control some of the operating conditions and problems of a coal mine by allowing them to monitor and adjust methane levels. The screen display shows a control panel indicating methane levels at three different points in the mine, and airflow in metres per second at these points. The user's job is to watch the dials so that methane levels do not exceed 1.25 per cent. These levels will vary according to the pumps, ventilation doors and the atmospheric pressure, also shown on the screen. Evasive action can be taken by checking the ventilation doors, or by increasing the level of work done by the ventilation pump.

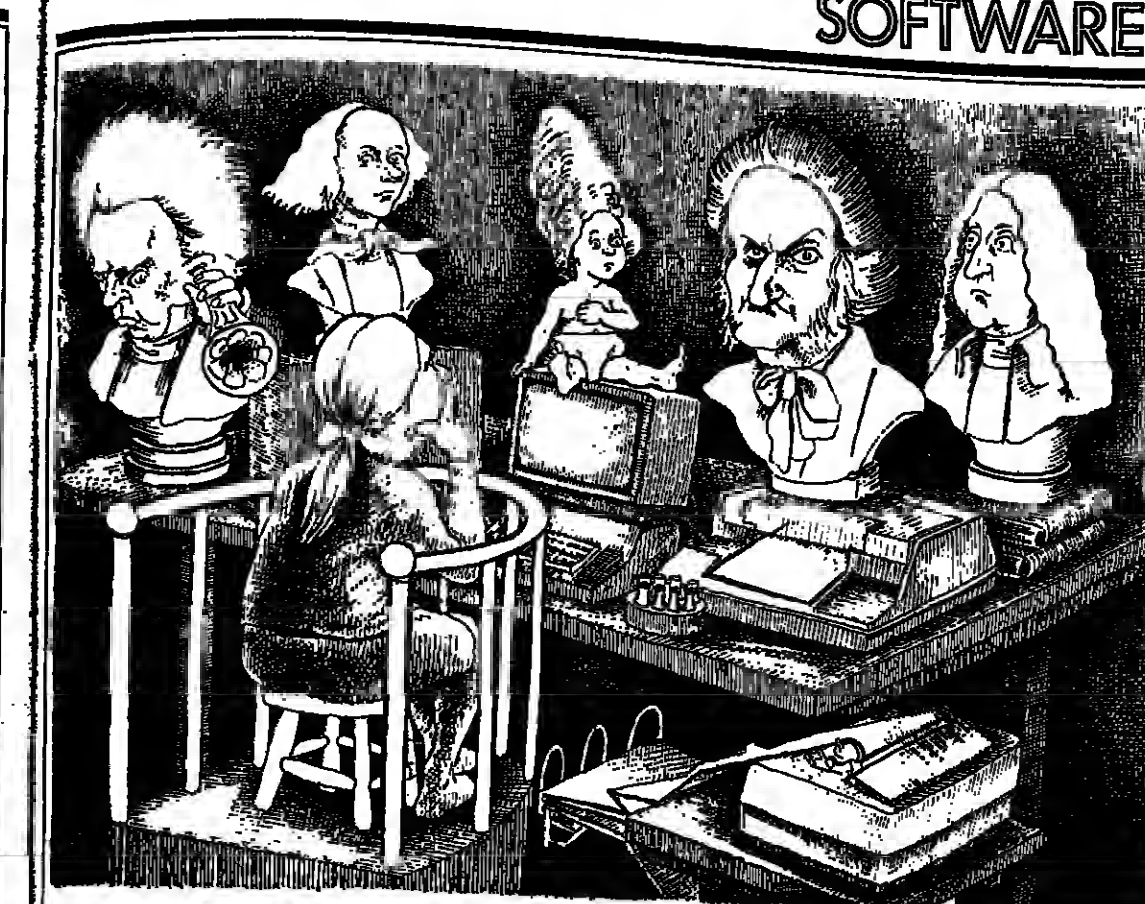
As a simulation of a real situation this package offers the opportunity for role-play in small groups and should encourage discussion between pupils. My own feeling is that it may not be absorbing enough, or engage a sufficient number of pupils, to be used with whole classes. In taking evasive action, for example, several seconds are spent while dials are read from the disc. Also, during the course of a simulated shift it may happen (if the option of "computer-generated events" is chosen) that no evasive action at all needs to be taken, and the user simply watches the screen dials. Perhaps this is the meaning of low key management.

Mine Manager does encourage the "skills of observation, interpretation and evaluation", as its booklet claims, and will also develop role-play and discussion. It will be useful in science departments with a range of fourth and fifth year courses.

Electric Fields "an interactive simulation" will be a valuable resource in allowing pupils to study electric fields of different strengths and the interaction between two charges. Up to four electric charges, + or -, can be placed on the screen, and their magnitudes can be varied. The field between, say, two like charges can be drawn and studied by measuring the field strength and the potential at different places on the screen. The red function keys have been programmed to make *Electric Fields* simple to use.

The program will be valuable for schools and colleges, although its use is likely to be confined to students taking A-level physics courses. It is straightforward to operate and could be used with small groups or groups. It could certainly make a potentially dull and difficult topic more interesting and comprehensible.

So, how do these programs "simulate" and how do the users interact with them? In two cases (*Gravity Pack* and *Work in Cars*) the motion of an idealized (not real) object is simulated. In those examples two (vide and energy). The belief that pupils' understanding of abstract concepts does improve through simulation is open to question and evaluation - extensive and systematic study would be needed to make the case.



Sophisticated equipment for the classroom

Processing music

NIGEL MORGAN

Midtrack
Electronic Music Research
BBC B MIDI interface and five discs (or cassette) with accompanying manuals and booklet, *MIDI, Music and Music by Mike Beecher*
Price: £69 plus VAT
EMR Ltd, 14 Mount Close, Wickford, Essex SS1 8JG.
Midway
For the BBC Microcomputer
Discworld Software
Chip and user manual £25 plus VAT and p.p.
Audio Learning Ltd, 740 Holloway Road, London N19 3JF.

For the professional studio musician and composer, the use of microcomputers as digital recording devices for electronic instruments has become an established fact. Systems like the Steinberg Pro-24 with the Atari computer and the UMI B with the BBC B make possible computer-controlled organization of every aspect of composition and performance, from the editing of phrases and durations to the mixing of different sound layers and the manipulation of signal processors.

The facility that makes all this possible is MIDI (Musical Instrument Digital Interface). Simply, MIDI allows digital communication between different electronic instruments, even those made by different manufacturers. The precision of the music system is an ideal vehicle for this. Using a bass line programmed from a synthesizer sequencer module to a drum machine through a MIDI cable gives the musician almost unerring accuracy. In the classroom this allows the young composer who may lack a good keyboard skill to coincide different musical ideas with a computer. To make effective use of software, the user needs the MIDI interface, a synthesizer and a MIDI keyboard and a MIDI drum machine. The Casio synth is polyphonic and a Yamaha RX21 drum machine, using a separate mono channel, can be played simultaneously with the MIDI commands.

The EMR system comes as a series of limited software packages. *The Performer* offers real-time recording and editing of MIDI material; the *Composer* permits precision correction and alteration of MIDI material; and

the *Imposer* makes possible the step-by-step entry of music from the computer or music keyboard. The *Editor* also allows step-by-step correction of music with real-time data. *Notator* is designed to take recorded material and convert this to traditional notation on a single or double staff. *Yunus* is a graphic display facility that responds to data as generated from a MIDI instrument.

Using the *Performer* was easy and the facilities offered by the program are more than adequate for the classroom. As a straight forward real time recorder of digital information it works well, inferring quintessence of notes, track merge, an arrangement of notes, offering up to 64 different combinations of pre-recorded tracks, looping to enable repeated phrases to be set up and a longer melody track, and pitch alteration and MIDI channel assignment. The demonstration pieces are pretty diabolical - rather corny pop arrangements of Christmas carols which actually contain a number of errors and jumps.

The *Editor* and *Composer* programs were, by contrast, disappointing and cannot be seriously recommended for use in school at GCSE level. I think it unlikely that many teachers are going to introduce the editing and manipulation of MIDI information, although this system would give the dedicated facilities to do so. In the professional world, MIDI editing is particularly effective in the precise control of synthesizer performance functions such as pitchbend and key velocity and aftertouch. In the selection of a "home studio" set-up (for which the system seems to have been designed) a dedicated musician could get effective results out of the programs' facilities.

In the usually frenetic atmosphere of school music activity sessions the patience required to utilize the programs would stretch most pupils and teachers to the limit. *Notator* could be useful for simple part copying of ensemble material but is at present a rather restricted format. *Yunus* could have some applications in the area of music for special needs, but can hardly be considered as a serious companion to the rest of the system.

For its price, the *Midtrack* system is unique, and in the right hands could be a stepping stone towards systems like the Steinberg Pro-24. EMR have produced an impressive quantity of resources for the low-budget MIDI musician. However, he warned: some of the exciting new products on their list are still under development and may not yet be available. A *Scorewriter* program has some excellent potential within it for a school music department. One teacher, who has had this software for several months, found it difficult and complicated in its initial format, but a new version prom-

ises individual music editing and really is worth waiting for. The quality of notation display is more than adequate for general school use, particularly if used in conjunction with a good photo-copyer that will enlarge.

Another useful range of software is the series of *Music Editors* for MIDI synthesizers and expanders. If you have ever tried to make alterations to or build sounds on a Casio CZ1000 or a Yamaha DX7 you may value software that allows a visual representation of sound parameters.

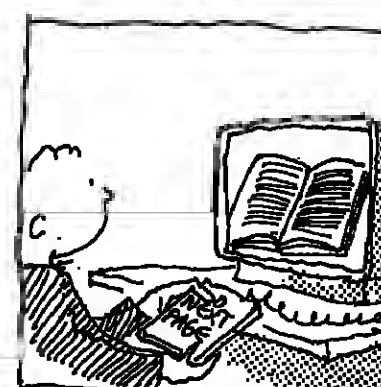
For those who find the whole MIDI phenomenon quite frightening, EMR publish an excellent booklet on the subject. They have special deals for those buying more than one piece of software and it's worth discussing individual requirements with them before purchasing any part of the system.

By contrast, *Musicpen* is an attempt to create a music processor, like a word processor, for writing and editing music. It allows the entry of music via the keyboard, lightpen and joystick. The software makes use of the internal soundchip of the BBC B, giving three harmony parts and a percussion voice. The user can write in compositions and then play them back, having full editing control over the results. The limitations are in the time signatures (only four available) and the tempo (six speeds between 40 and 150). I found it difficult to take seriously the manual's solution to writing four-part harmony with three voices - "you can write in the notes in voice 4 to look as if they are just another harmony part" (useful, I suppose for writing a four-part score to be printed). There is also mention of a forthcoming utilities disc designed for Econet users to enable two or more BBC computers to run in sync, allowing multipart composition and performance.

The strength of this system is definitely in its synthesizer feature, from which you can create your own sounds. It has a screen display that has been designed to look like the control panel of a graphic equalizer. If you are familiar with the possibilities of the BBC micro's sound capabilities this feature could be a useful tool for creating sounds quickly and storing them for use in composition.

As a music system for the computer lab, *Musicpen* might well provide good material for pupils who wish to explore the music and sound features of the BBC computer. In the music classroom I think its application is very limited, as teachers and their pupils are getting used to computer applications that either give the user a full synthesizer and multi-part composition facility (the Hybrid Music System is a good example) or as a digital recorder and editor for a MIDI synthesizer. At a classroom level the EMR *Midtrack* software system for its price alone must be worth consideration.

History was never one of my strong points, but I found the opportunity to follow a line of investigation about the role of the workhouse irresistible. My only criticism is that the search is quite slow (about 2-3 seconds per page), so that the user might have to wait several minutes for the phrase to be found. The version reviewed was for the BBC and was written in Basic, and there would be a great improvement in speed if the search routine could be



A good read

MALCOLM NEAVE

Viewbook
£15 plus VAT
For BBC B/Master, RM Nimbus, Amstrad PCW 8256 and any IBM compatible
Information Education Ltd, Unit 33, Enterprise Centre, Bedford Street, Stoke on Trent ST1 4PZ.

Viewbook provides the text of a book on one or more computer discs. The present catalogue covers topics from several areas of the curriculum, including science, geography, history and sociology, and the producers say that a number of further titles - as well as a content-free version - are in the planning or production stage.

Having placed a disc in the computer drive and started the program, the user is presented with an introduction to the topic together with a menu of options, which are permanently displayed in the lower portion of the screen. One group of these allows the user to move forward or backward one page at a time, to move to a particular page, or to the page at which reading finished on a previous occasion. The book may spread over a number of discs and, if the page required is not on the disc currently in use, the program will prompt the user to change the disc. Another group of commands allow the user to print one or more pages or to jot down the end of a session.

So far, there may appear to be no real benefits over the traditional book format and, indeed, some disadvantages, as there are no illustrations, but just pages of text. However, it is in the area of searching the text that the power of the computer comes to the fore. The user can type in a word or phrase (of up to 25 characters) and ask the computer to search the entire book for its occurrence - when a reference is found, the relevant page is displayed, with the phrase highlighted, and the user can opt to study that page or to continue the search. No longer is the reader frustrated by situations where the index has not included the particular phrase that is wanted. Instead, they are encouraged to ask "I wonder if there are any references to..." and to explore the text.

History was never one of my strong points, but I found the opportunity to follow a line of investigation about the role of the workhouse irresistible. My only criticism is that the search is quite slow (about 2-3 seconds per page), so that the user might have to wait several minutes for the phrase to be found. The version reviewed was for the BBC and was written in Basic, and there would be a great improvement in speed if the search routine could be

written in assembler; perhaps this may occur in a future release. If the phrase is not found within 10 pages, the user is offered the opportunity to cancel the search, thus avoiding the possibility of waiting 15 minutes while the computer searches for a mis-spelling!

Another strong point in favour of producing books in computer format is that the production and distribution costs are much lower. The average *Viewbook* contains about 300 screen "pages" and costs £15. However, the purchaser may then produce up to 20 copies, at a minimal cost - a lot less than the cost of duplicating a book, even if one was allowed to do so! The facility is also provided to save particular pages of the book as text files, which can then be inserted into the user's own word-processed documents and edited as required. The publishers have relaxed the copyright restrictions, so that any number of pages can be reproduced or stored in computers, provided that they are not distributed outside the establishment that has bought the programs.

If a school can provide one or more computers for general access, together with disc-based reference materials such as these, then the way is open to resource-based learning, instigated by the pupil, with the computer being used as an investigative tool. I cannot comment on the suitability of the material to the various courses offered in schools, as these were outside my own area of experience, but they are well presented, lucid accounts, prepared by specialists with substantial knowledge of the topics covered. They are also an excellent introduction to the use of the computer as an educational resource throughout the curriculum, an area which is likely to develop rapidly in the next few years, with the introduction of low-cost CD-ROM systems providing rapid access to very large amounts of data. It is an approach which other publishers would do well to consider for the future.

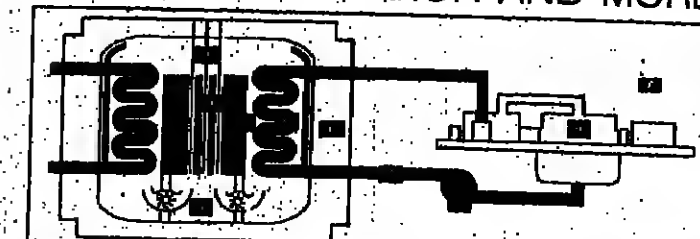
How Many Nuclear Power Stations are there in the UK?

Where are they located?

What type are they?

What is their contribution to the Electricity Supply in the UK?

POWER PLAN HAS THE INFORMATION AND MORE



POWER PLAN is a computer program for Secondary Schools and Colleges. Not only is it a detailed information teaching material, it is an interesting simulation in which pupils struggle with real life nuclear power problems to provide electricity to the UK.

POWER PLAN is written for the BBC B, B+, and Master and is available on 40 or 80 track disc with accompanying full colour poster. Orders for **POWER PLAN**, which is priced £10 inclusive of VAT, should be sent to Power Plan, Resources for Learning, 10 Park Drive, Heaton, Bradford, West Yorkshire, BD9 4DS. For further information tel (0274) 486030/487337.

Finalists British Micro Awards 1986



THE ROBIN LIGHT PEN

Paints, Draws, Writes and even plays Music on the BBC Micro.

THE ROBIN VOICE BOX

helps children reading and language development. Plug into the BBC Micro and speaks the word pointed to by the pen.

Highly recommended and widely used in Primary Schools and Special Education.

Details from: The Educational Software Company, 108 Parthenon Drive, Liverpool
Tel: 051 228 1214

AMIGA MICROTEXT

The new, level 4 implementation of the Microtext Authoring System for the Commodore AMIGA computer.

Artadine Software Ltd, Stand D12 IV87, BIVA Exhibition Brighton Metropole, 1st-3rd December 1987 or phone 01-960 0203.

15hr Word Processing Series

a selection of essay-to-follow, jargon-free WP training courses, for Wordstar and Amstrad, £5.95 each. (Buy 10 get one FREE from NEC.)

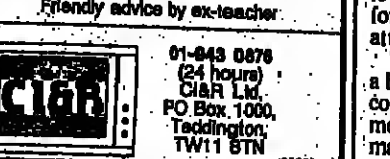
WP Practical Exercises

- covers most exams, £4.95.

Contact National Extension College, Dept 620, 18 Brooklands Ave, Campt. CB2 2HN. Tel. 0223 318644.

EDUCATIONAL COMPUTER SUPPLIES

Amstrad PCs, PCW's, BBCs, Amigas IBM compatibles, printers, modems, software, discs, ribbons etc. All supplied at educational discount. Friendly advice by ex-teacher.



01-943 0878 (9am-5pm)
GAB Ltd
PO Box 1000, Teddington, TW11 8TN

M.P.S.S. THE BASIC DATABASE

the most POWERFUL MANAGEMENT DATABASE on any micro today. Now in use in 30 Local Authorities. Available from Management Data Systems, 108 Parthenon Drive, Liverpool L11 7AQ. Tel: 051 228 1214



Discs for tackling adult literacy problems

Through the maze

JACQUETTA MEGARRY

Literacy software from ALBSU Software on 40-track disc for BBC Micro, DFS format. Adult Literacy and Basic Skills Unit, Kingsbourne House, 229/231 High Holborn, London WC1V 7DA.

The problem of adult illiteracy in Britain is massive. Until recently it has received little attention and resources are still inadequate to combat it. Each year, at least 100,000 teenagers leave school with poor reading skills and great difficulty in composing, spelling or punctuating extended writing of any kind. It gets harder, not easier, for those whom compulsory schooling has failed to acknowledge their problems, let alone to solve them.

Computer software can readily be made individualized, interactive, patient and colourful. For those with literacy problems, it should also employ an adult vocabulary, eschewing childish rewards and jingles, and should be designed to make it easy for tutors to edit and adapt locally. Because micros are so recent, software also offers the important bonus that it is not mutually associated with the methods that failed in the past.

The Adult Literacy and Basic Skills Unit (ALBSU) offers a splendid range of materials for teaching literacy, numeracy and English as a second language (ESL). Their free colour catalogue lists a cornucopia of posters, books and tutors support material, beautifully presented and at reasonable prices. It also lists a range of software, and many schools could use such materials without modification for the large fraction (perhaps one sixth or more) of their pupils with literacy problems.

The output of the ALBSU Micro-computing Project has a strong house-style. Each title comes in simple packaging, with a concise teacher's booklet and a very modest price-tag. A leaflet for computer-averse tutors summarizes the main points about using disc-based software on the BBC micro. Apart from the misleading oddity of showing the Basic prompt as it is typed in (eg "type >CAT" to catalogue the disc") it is both reliable and helpful.

Perhaps the most satisfying title was *Spelling* (£7) produced by the City of Bath Technical College on two discs. Aimed at those who "already read fairly well but have persistent difficulties with spelling", the discs provide 13 programs offering a variety of learning techniques. The approach is based on Cathy Moorhouse's excellent booklet *Helping Adults to Spell* (60p, also from ALBSU).

The techniques include flashing words on the screen for a short period after which the student writes, then types, the word and finally puts it into the context of a sentence. This program holds only 10 words and sentences but can also present the student's own. *Missing Parts* is similar, except that the word appears afterwards with various pairs of letters missing. Again there are consolidation activities and students can use their own words.

Other programs encourage students to "underline the hard bit" and also to break words into smaller and more manageable pieces. Disc two follows up these approaches with programs that build compound words from their constituent parts, and also by combining root words with prefixes and suffixes. Subsequent programs introduce harder prefixes and suffixes, and invite the student to construct as many words as possible from randomly selected lists.

Disc two also offers a simple word search program in which letters are jumbled and the student's list of solution words is compared against a master checklist held by the program. Again the tutor can build up a library of individualized words. Almost inevitably, there is also a Hangman game, disappointingly ordinary in its implementation.

While none of the *Spelling* programs is in itself remarkable, between them the two discs offer a usefully varied treatment in the context of a sound theoretical model. Their adult approach has much to commend it, with poor spellers of any age.

Also from Bath Technical College is a two-disc version of *Crosswords* (£7). As a way of stimulating students to puzzle over spelling and clues, the crossword has much to commend it. The first program generates a crossword grid, and the second allows you to add numbers and clues. The main puzzle program presents one of six standard puzzles by default, though students' own crosswords can be selected instead. There is also a utility to print out the crossword puzzle.

This suite of programs creates a comprehensive system for crosswords. Unfortunately, the programming seems rather amateurish. Escape key was not disabled, use of the system involves too much tedious disc-swapping and the generation of grids was agonizingly slow. The documentation contained several serious typographical errors; let's hope for a more professional second edition.

Puzzles (£7) teaches the discrimination between sentences and phrases, and invites the student to introduce a new paragraph where appropriate. Again the use of students' own sentences involves disc-swapping, and I had reservations about the conventions for student response. Why ask a student to type an asterisk

to signal a new paragraph when by pressing the Return key he could create a new paragraph visibly on the screen? Why not set a good example with at least one space between sentences in the model answers?

Multi-Maze and *Con-Word* (both £7) were produced by Croydon Adult Education Service and for me had less appeal than the Bath products. *Multi-Maze* essentially presents the student with a series of multiple-choice questions in order to make progress through a maze whose perspective is presented through straight lines. A plan of the maze is only available as an option, but without it I found it impossible to get my bearings. Presumably the activity of navigating through the maze is intended to motivate students to answer the questions, I found it intolerably boring.

Con-Word is quite different in style: it depends on the availability of a Concept keyboard (A3 or A4), and is meant for students who can recognize words and use them, but not necessarily spell or type them. The main activity is to sort and re-arrange words and sentences. Sample files are provided with stories (typically five sentences) and figures (15 numbers). Re-arranging a jumbled story into a possible sequence can be an interesting task (more so than putting figures into ascending order of magnitude), but will quickly pall unless relieved by other activities. For those with access to Concept keyboards (including primary and special schools), this software provides some useful exercises but is disappointingly little fun for most users. Constant disc-swapping is an irritation for single drive users.

These programs illustrate the scope for using "adult" software approaches to tackle literacy problems. They raise the tantalizing question of whether it might be more cost-effective to give students access to a good word processor with spellcheck software. Indeed, if, like *Wordwise Plus*, the word processor can support its own software, maybe the best of the ALBSU approach could be combined with a tool of direct practical utility to both students and tutors.

Anyone interested in pursuing that approach should obtain another recent ALBSU publication, *Word Processing and Language Skills* by Janet Leonard (£3), which provides a really first-rate systematic treatment. A series of 30 carefully-graded tasks build up language skills through the best possible medium - the student's own writing. Each task is clearly explained in a standard format which highlights pre-writing work, follow-up exercises and tutors' preparatory work.

Leonard's handbook is full of practical advice and forms an excellent follow-up to her earlier *ALBSU/LSA text, Computers in Language and Literacy Work* (£2.50). It is comprehensive, concise and practical, and worth its purchase price for the appendices alone. The first two provide a succinct and up-to-date guide to choosing a word processor and a printer, the third

is a useful glossary. The results data are used in conjunction with the program, and the screen shows a bar chart comparison between each of the food items and their total, and there are comments on the sex of the user of a limited number of nutrients. This is rather a slow process but it does assist to dispel the ideas of foods as being composed of one nutrient. The pupil is then asked to record these results and to answer questions.

The next phase is for the teacher to choose from a number of ideas which are given as follow-up work. One, for example, is to edit and improve a diet, add a second for comparison, and then remove editing to make way for a third. The permutations are endless.

Perhaps it is instructive to note that tucked in the preamble of this pack is the statement that it was "originally developed to make diet analysis a feasible and interesting exercise for secondary school students with poor numeracy". It certainly does remove the drudgery of the otherwise necessary referral to food tables but without the given constraints the most nutritious food is a long way to go - beware.

Foodstuff

Balance your Diet
Netherhall Software
ISBN 0 521 32138 7
BBC 4080 track disc, £17.50; Econet £32.50; RML 380/480Z and Nimbus £17.50; Apple II £20; all prices excl VAT

Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge, CB2 2RU.

Balance your Diet is a title which conjures up its simplicity possible solutions to many problems for the teacher and pupil of home economics. However, in reality, this pack serves to demonstrate the complexity of this area of study and the limitations to be wary of in related software.

The handbook is explicit and reproducible worksheets are provided. They are the starting point for the pupil, who is asked to record a day's diet and to convert foods from a given list to their representative code number and weight per portion. This process enables the pupil to see how diverse the foodstuff are that we consume as he/she will find it inordinately difficult to correlate their diet to the given list. The resultant data are used in conjunction

Play the market

DAVID WHITEHEAD

Stock Market - An Economics Game
By Peter Leech
Sucker - A Business Game
By Ralph Cooke
BBC B, RML disc and network, Apple II
£18.50 each (+ VAT)
Longman Micro Software, Longman Resources Unit, 62 Halffield Road, York YO3 7XO.

Both these simulations are simple and effective. They were devised by experienced economics teachers as part of Longman's *Understanding Economics* series. The software shows the lessons learned from the first generation of computer-assisted games. Both set up simple models which illustrate straightforward economic relationships.

Stock Market asks users to become economic analysts and predict how six companies' share prices might change as a result of certain news items. Each team is given a notional £1000 and has to decide what, if any, shares to buy. The companies comprise a car firm, a steel producer, a petrol company, a housing corporation, a farm enterprise and an importer of electrical goods. Students have to consider how such firms will be affected by headlines such as "Petrol prices to rise again" and "Bftr rule falls".

However, what students really have to decide is what will happen to the companies' share price as a result of the news item, which may be quite different. The game has a useful review feature whereby students can subsequently check how each news story did affect share prices. Most of the "shocks" are punning figures, though "Public spending has been government" is unequivocal. The most useful aspect of the simulations is that students are forced to consider the effects of changes in economic variables such as exchange rates and interest rates on particular sectors of the economy. To link this with changes

in stock market prices is a dubious procedure since the latter are influenced by technical and internal factors as well. Teachers would need to remind players that the model excludes all such extraneous factors.

The game is competitive: the team which makes the most predictions which makes the highest capital gain. This unrealistic objective - the single-minded pursuit of share appreciation - is not questioned. But as long as the supply and demand relationships rather than the stock market aspects are brought out, the exercise is worthwhile.

Sucker provides another designed model in which students make managerial decisions about the operation of a company making vacuum cleaners. Ralph Cooke has deliberately kept the model simple so that students can identify the key cost and revenue relationships. In each round, students have to set a price for the product, having been told their fixed and variable costs and also a production target. The competitive market model means that if the cleaners are over-priced, unsold stocks accumulate. It is also possible to incorporate "shocks", such as "Report by the Consumers' Association that your product is a best buy", which change the demand for the product. One of these, "Row in the House of Commons over foreign competition on the UK vacuum cleaner market", reduces demand rather oddly by 20 per cent.

The simulation may be played individually or in up to 10 teams, and 12 monthly decision periods are permitted. The graphic displays are neat and clear, and the use of a printer enables groups to scrutinize board copy of their past decisions. After a few rounds, students should have obtained quite a clear idea of the shape of the demand curve, and should also understand much more thoroughly the notion of "supply and demand".

Both these C.A.I. packages are recommended for GCSE economics and business studies courses. They teach mainstream ideas succinctly, and the financial and time costs are, unlike some earlier exercises, reasonable.



PRIMARY HEADSHIPS

continued

HERTFORDSHIRE
WILTON SCHOOL, WILTON, HERTS. SG11 2JL. Contact: Mrs E.M. Davies. 110010

HERTFORDSHIRE

MARTINDALE J.M.S.
SCHOOL WITH NUISERY, Martindale, Hemel Hempstead. Group 4. Applications are invited for the post of Headteacher for this Group 4 school for April 1988. On the retirement of the present holder. Relocation expenses may be payable. Forms and further details from the Divisional Education Centre, The City Centre, Hemel Hempstead, Herts. HP1 100. (a.s.e. please). Closing date: 6th November 1987. 110010

HILLINGDON

LONDON BOROUGH OF HILLINGDON
WILLIAM IVILL PRIMARY SCHOOL, Victoria Lane, Harlington, Herts. SG11 2JL. Contact: Mr. Pearson. 110010

LANCASHIRE

COUNTY COUNCIL
An Equal Opportunity Employer welcoming applications from all qualified persons into the community. **LEVANT WOODLEY PRIMARY SCHOOL, LEVANT, PRESTON. 1185 on Roll. 110010**

HEADTEACHER

Required Easter 1988. Applications are invited from suitably qualified teachers for the following Headship. **RAMSEY COUNTY PRIMARY SCHOOL (GROUP 3)** The Street, Ramsey, Harwich. Removal and relocation expenses of £4000 are available for those who qualify. Application forms and details from the County Education Officer, P.O. Box 47, Thredneedle House, Market Road, Chelmsford, Essex, CM1 1LD. Tel. (0245) 42211. Ext 30260. Closing date: 6th November 1987. 110010

ESSEX

County Council

HILLINGDON

LONDON BOROUGH OF HILLINGDON
WILLIAM IVILL PRIMARY SCHOOL, Victoria Lane, Harlington, Herts. SG11 2JL. Contact: Mr. Pearson. 110010

HEADSHIPS

EAST KENT AREA

Dane, Janet County Infants School, Newington Road, Ramsgate, CT12 8QB. Group 4. Applications are invited for this appointment at this school from April 1988. Further details and application forms available from the Area Education Office, 78 London Road, Canterbury, CT2 9LT. Closing date: 30th October 1987 (SAE please).

WEST KENT AREA

St. Margaret Clitherow R.C. Primary School, Trenah Road, Tonbridge, Kent. Group 4, Roll 260 max. The Governors invite applications for this post to take up duties as soon as possible after 1st January 1988. Candidates should be experienced and well qualified, providing Roman Catholic holding the Catholic Teachers' Certificate. Further particulars and application forms may be obtained from the Area Education Officer (Ref: PT/SD) 35, Grove Hill Road, Tunbridge Wells TN11 2SL, to whom they should be returned by 8th November 1987.

SOUTH KENT AREA

Charing CE (Aided) Primary School, Charing, Ashford TN27 0JN. Group 4. Applications are invited for this post from 1st September 1988. Applicants should be active members of the Church of England. Application form and further details available from the Clerk to the Governors, Charing CE (Aided) Primary School, (S.A.E. please). Closing date: 8th November 1987.

DEPUTY HEADSHIPS

NORTH WEST KENT AREA

Northcourt County Primary School, Dikene Road, Gravesend, Kent DA12 2JY. Applications are invited for this post of Deputy to newly appointed Headmaster. Northcourt school is a multi-ethnic school with nursery and infant school on site. Closing date for applications 30th October 1987. Possibility of help with temporary housing in approved cases.

NORTH KENT AREA

Sittingbourne, Barrow Grove County Junior School, Homewood Avenue, Sittingbourne, ME10 1KN. Group 5. Required for April 1988. Since this previous holder has been appointed a Lecturer at Chichester College, applicants are now invited from suitably qualified, enthusiastic and energetic teachers who are able to offer a significant and imaginative contribution to the further development of the school. Successful candidates will work closely with the Head and be expected to play a leading role in Parent/Teacher relations. Further information can be obtained from the Headteacher and a visit to the School by arrangement. Closing date: 28th October 1987.

LEICESTERSHIRE

COUNTY COUNCIL
Equal Opportunity Employer. **BRIDGE JUNIOR SCHOOL**, Mere Close, M.C. Road, Leicester LE5 1DL. Group 2. **HEADTEACHER** Required for January 1988. Removal expenses and relocation expenses payable in approved cases. Application forms and further details obtainable by forwarding a request to the Director of Education, County Hall, Morpeth NE61 1AF. To be returned by 1st November 1987. Previous applicants will be considered. 110010

NORTHUMBERLAND

NEWBOLD BY THE SEA
MORPETH COUNTY FIRST SCHOOL, 4-5 First School of 250 pupils. **HEADTEACHER** Required from January 1988. Removal expenses and relocation expenses payable in approved cases. Application forms and further details obtainable by forwarding a request to the Director of Education, County Hall, Morpeth NE61 1AF. To be returned by 1st November 1987. Previous applicants will be considered. 110010

SHROPSHIRE

EDUCATION COMMITTEE
AN EQUAL OPPORTUNITY EMPLOYER. **PRIMARY HEADSHIP** 10 group 4. **HEADTEACHER** Required Easter 1988. Removal expenses and relocation expenses payable in approved cases. Application forms and further details obtainable by forwarding a request to the Director of Education, County Hall, Shrewsbury, Shropshire SY3 1JZ. To be returned by 1st November 1987. Previous applicants will be considered. 110010

SOUTH KENT AREA

The Powell County Primary School, The Lines, Buxton, Dover CT16 2BN. Required for this Group 4 school from the beginning of Summer Term 1988. Closing date: 30th November 1987.

MAIN SCALE INCENTIVE B

MID KENT AREA

South Borough C.P. Junior School, Looe Road, Maidstone, ME15 6TL. (Roll 422) Enthusiastic, experienced teacher required for the development and co-ordination of Language, Reading and Drama throughout the school, required January/April 1988. Incentive allowance £2,500 for a convenient appointment. Possibility of help with temporary housing in approved cases.

SOUTH KENT AREA

South Dail CP School, Mill Road, Deal, Kent CT14 9BG. Required for Spring (or Summer) 1988 experienced teacher for Head of Middle School department (Main Scale + Allowance £1) for this Group 9 school. Closing date: 30th October 1987. Re-advertisement: Previous applicants remain under consideration.

NORTH KENT AREA

St. Mary's R.C. Schools, Ingram Road, Gillingham, ME7 1YL. The Infant and Junior Schools combine on separate sites in January 1988 pending new buildings in 1988. Teacher required for January 1988. This excellent development offers the opportunity for curriculum and career development so please suggest your educational strengths and preferred age groups. Applications by letter initially with two references to Mr. F. McConnell, at the school. Please telephone (Madway 02248) to visit or for more details. C.T.C./practising Catholic preferred as soon as possible.

MID KENT AREA

Brookfield CP School (Infant Department), Swallow Road, Larkfield, Maidstone, ME20 6PY. Teacher for January 1988. Please state special areas of interest. Brunel House CP School, Buckland Road, Maidstone, ME15 6SD. Roll 215. Enthusiastic Teacher of Junior for January 1988. Able to take responsibility for Physical Education throughout the school. College leavers welcomed. Applicants are welcome to telephone the Headteacher for further details on 0222 82102. 110010



Unless otherwise stated, applications should be sent to the Head of the School concerned (SAE please).

SURREY COUNTY COUNCIL

• FRINGE AREA LONDON ALLOWANCE £309 p.a. throughout the County.
• Temporary housing may be available.
• Generous relocation expenses in approved cases.

HEADSHIP

SPELLTHORPE COUNTY MIDDLE SCHOOL, Feltham Hill Road, Ashford Common, TW15 1SH. Est. NOV Jan 1988 - 229. **HEADTEACHER** required from April 1988 for this Group 4 Middle school for pupils aged 8-12 years. Salary Scale £17,000 p.a. Application form and further details from the North East Area Education Office, 7 Monument Hill, Weybridge, Surrey KT13 8RZ (SAE please). Closing date: 30 October 1987. 110010

EDUCATION DEPARTMENT

Headteacher

Gossops Green First School, Crawley

Salary: Group 5

Required April 1988 for this Group 5 school for pupils aged 5-8 years. The school was built in 1958 and reorganised from 1985 benefitted from a substantial building programme.

Assistance will be given towards removal and resettlement expenses in appropriate cases.

Application form and further details available from Area Education Officer, Goffs Park House, Horsham Road, Crawley, Sussex on receipt of e.s.a.s.

west sussex

**LEICESTERSHIRE
COUNTY COUNCIL**
An Equal Opportunity
Employer
**BRAUNSTONE PRIT
INFANTS SCHOOL**
Liberty Road, Leices
NOR 100
SCALEM 9.
Required January
brochure for The Info
Please contact the
teacher.

207281

SHERBROOKE [JM&+N]
Rosehale Road, Fulham,
SW6 7ON. Tel: 01-385 397
Rolt: 140.
Head: Lorne Venables
Required asap 01 teacher
work alongside class teach
section 11 support.
SIR WILLIAM BURROUGHS
[JM&+N]
Salmon Lane, Limehouse,
London E14. Tel: 01-987 21
Rolt: 200.

Head: Susy Powlesland
Required asap.
1) Nursery teacher, 0.5, to work with the full-time teacher in nursery class.
2) 0.4 support teacher, for L and possibly help to develop drama and dance in the school.
3) Steel Band teacher 0.2 or 0.4, to work with our enthusiastic Juniors, willing to teach girls and boys, of Bangladeshi, English and Chinese origins, the craft of

WOOLMORE (IMB+N)
Bullivant Street, E14 OER.
Tel: 01-987 2778. Roll: 1504.
Head: Mrs Edwards
Requires asap:
1) 0.6 pan-time teacher for
section 11, class support and
other cover in infant classes
time and days negotiable.
2) 0.6 part-time teacher for
section 11 class support and
other cover in junior classes

Scale 1 Supply Teachers

for permanent appointment as
cover teacher (not in special
schools) as well as on a casual
supply basis. If you are interested
pursuing a worthwhile career
working in education and would
like to receive further details and a
application form, contact the
Section of your nearest Division
Office (see below). Special Schools
— all areas 81-633 7671

Hammermith & Kensington
01-663
Lawisham 01-696
Camden & Westminster

Southwark 01-486
Islington 01-703
Lambeth 01-272
Hackney 01-274
Wandsworth 01-802
City & Tower Hamlets 01-874
Greenwich 01-760
01-885

Applications are invited from qualified teachers interested in working in

The closing date for applications is 30th October 1997, unless indicated

otherwise.

**Inner
London
Education
Authority**

**ILEA
IS AN EQUAL
OPPORTUNITY
EMPLOYER**

Applications are invited
qualified teachers
3 in working in
ing inner-city
ment.
ation forms and
table are available
es requested
Via to
y appointment,
med.
ing date for
rs is 30th October
as indicated

Required from January.
Experienced primary teacher
Main Scale to co-ordinate
mathematics throughout the
school.

(IMM+H)
Fulltime
£1-385 5974

inables
01 teacher to
class teacher on
order.

UURROUGH
unehouse,
£1-987 2147.

wise land
near, 0.5 to work
as a teacher in our
school, for LPA
to develop
in the school.
either 0.2 or
our
toys, of
light and
the craft of the

(IMM+H)
E14 DER.
£1. Pol. 1529-28.

teacher for
support and
first classes
negotiable.
teacher for
support and
first classes
negotiable.

**Supply
Teachers**

ly opportunities
1990 has say,
any area of
all levels London
who have
achieved their
opportunities
confidentially
specific
as an essential
to are interested in
whole career
tion and how do like
observed on
contact the Staff
street Division of
Special Schools
G 7077

Kingston
01-863 3348
01-866 4533

Warril
01-486 0180
01-272 0835
01-272 7727
01-274 6808
01-272 3177
01-474 7023

ale
01-790 1086
01-865 2183

are invited
teachers
working in
non-city

forms and
are available
of the
requested
to a
interview.

date for
15th October

**er
on
tion
nity**

**EQUAL
UNITY
TYER**

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

75

100

7

100

...

4

4

100

1990

100

[illegible]

■

1997

BOLTON
METROPOLITAN SOROCU
An Equal Opportunity
Employer
CANON BLANE SCHOOL
Bradshaw Bwv, Bolton BL2
5BP
1-18
SECOND IN MATHE - Main
Professional Drels Plus
Allowance R/C, 1921
Employed from January 19
an experienced and qual
ified teacher to be appointe
a large Department of twe
nts. The person appointe
will be required to teach t
levels and to share the wor
running the Department w
the Head of the Departmen
He or she will be involv
teaching pure maths in 1
eleth form and statistics u
the first but will be uncap
to teach all branches

'A' level, but will be a
to teach all branches

BROMLEY
ST OLAVE'S SCHOOL
Coventry, Leics
Origins: 1848
Ref: 958 23191
For January: Graduates to be second year, deans to be and to teach Mathematics to be in the sixth form. (Signed school of 693 boys 139 in the sixth Form.)
Allowance B plus £783 London Weightings.
A Governors' house or room may be available at an economic rate if this would be helpful.

Head Teacher (large
promptly. t15394) 1

EALING
LONDON BOROUGH
EDUCATION SERVICE
TWOYFORD C OF E HIGH
SCHOOL
Twoyford Crescent, Acton W3
8PE
Required for January 1995.
Teacher of Maths to be second
in Maths Department in the
expanding co-educational 13
year comprehensive school.
The Maths is well established
and the department is offered con-
tinuing CPD courses, the de-
partment contributes significant-
ly to the information technology
curriculum of the school.
Candidates should be in sym-
pathy with the ethos of the Church
of England School.
Main salary scale + 5, 12, 14, 16
plus a £1,215 London
London Weightings.
Retefaction expenses prob-

tion forms obtainable
 Hoodmester, Tel.
 8365 Box 2322

turned by 30th October 1981
132401 13343

STAFFORDSHIRE
CARDINAL ORFRIIN R.C. (A
COMPREHENSIVE SCHOOL,
C/O Mrs. J. Orfrien, 100 Ford Road,
Cannock WS11 3AW
Required for January, 1982
MATHEMATICS (Teaching
Elementary (A.S.S.C.) and
Allowance B) to be second and successful
well established and successful
teaching. 'A' level teaching
is available.
A application forms obtainable from and returnable to the
Headmaster (A.S.S.C.) Tall Cornock
1334351 23135
Conveying will dispenditure
of the data 10 days from publication.
Trade Union membership encouraged
and equal opportunity employer.

BRENT

EDUCATION

TEACHER OF GEOGRAPHY (Main Grade)
COPLAND COMMUNITY SCHOOL, Caeli Avenue, Wembley,
Middx HA9 7DX. Tel 01-902/8392/903 3323
Required from January 1988 or as soon as possible before
A well qualified and enthusiastic **TEACHER OF GEOGRAPHY** (Main

Application form and further details are available from the Headteacher to whom completed forms should be returned by 28th October 1987.

status, gender, lesbians and gay men and from disabled persons.

**ORIENT IS AN EQUAL OPPORTUNITY
EMPLOYER**

To: The School/Office

I am interested in the post of _____

Please send me further information

Name: _____

Address: _____

CROYDON
An equal opportunity employer

EDUCATION DEPARTMENT

ASSISTANT EDUCATION OFFICER

Salary c.£14,500-£17,500

This post which becomes vacant with effect from 1st January 1988 supports the Senior Education Officer with responsibility for primary and secondary schools in the South Gloucestershire area of the Authority.

The post could be suitable for someone seeking a first position in educational management or someone already holding their first post within an Education Department.

In addition to area responsibilities in support of the Senior Education Officer's management responsibilities there will be opportunities to develop professional interests County-wide and contribute to the work of the Department as a whole.

A career allowance is attached to this post.

Further details and application forms may be obtained from the Chief Education Officer, 6th Floor, Gloucester GL1 2TP. Telephone: Gloucester 425488 (24-hour answer phone). Closing date: 30th October, 1987.

Gloucestershire County Council

The County Council is an equal opportunities employer and positively welcomes applications from all sections of the community.

LEA - ADMINISTRATION

HUMBERSIDE

Head of Education, £7,850 - £9,450. 12.5 hours. Full-time. This is a senior position of responsibility for the education of the County. The holder will be responsible for the management of the education service and for the development of the education system. The holder will be responsible for the management of the education service and for the development of the education system.

WAKEFIELD

Head of Education, £7,850 - £9,450. 12.5 hours. Full-time. This is a senior position of responsibility for the education of the County. The holder will be responsible for the management of the education service and for the development of the education system. The holder will be responsible for the management of the education service and for the development of the education system.

General Administration

LONDON W6

Head of Education, £7,850 - £9,450. 12.5 hours. Full-time. This is a senior position of responsibility for the education of the County. The holder will be responsible for the management of the education service and for the development of the education system. The holder will be responsible for the management of the education service and for the development of the education system.

OXFORDSHIRE

Head of Education, £7,850 - £9,450. 12.5 hours. Full-time. This is a senior position of responsibility for the education of the County. The holder will be responsible for the management of the education service and for the development of the education system. The holder will be responsible for the management of the education service and for the development of the education system.

Examiners

THE ASSOCIATED EXAMINING BOARD

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

STAO HILL HOUSE

LONDON AND EAST ANGLIAN GROUP FOR GCSE EXAMINATIONS

EAST ANGLIAN EXAMINATIONS BOARD

LONDON REGIONAL EXAMINATIONS BOARD

UNIVERSITY OF LONDON SCHOOL EXAMINATIONS BOARD

GENERAL CERTIFICATE OF SECONDARY EDUCATION EXAMINATION 1988

EXAMINERS AND ASSESSORS

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

SCIENCE (M) - Modular

Education and Training Manager - Caravan Industry Training Organisation C. £10,000 pa.

The Education and Training Manager is an exciting new post which has been created to provide specialist and administrative support to the National Training Programme Quality and Standards Panel. The Quality and Standards Panel is responsible for identifying and providing key skill requirements and training needs for the Caravan, Camping and Self-Catering Industry.

The Education and Training Manager will be based at Aldershot but considerable travel is involved throughout the UK. The principal activities will be concerned with the provision of an advisory service, committee administration, representative Management Courses and carrying out research, principally in connection with the development of the National Training Programme.

The successful candidate will be over 25 but probably under 35 years of age and will be able to demonstrate previous experience in an industry training environment. We are seeking to appoint a highly motivated individual. Training will be given in the specialized areas of the job but educational qualifications to degree level are desirable.

The remuneration package includes a salary of c.£10,000 per annum, a company car, contributory pension scheme and other fringe benefits. Assistance with relocation expenses will be provided, if necessary.

Interested candidates should send their full CV together with a covering letter in support of their application to:

The Caravan Industry Training Organisation
National Training Programme
88 Catharine House
Victoria Road
Aldershot
Hants
GU11 1SS

FRÖBEL INSTITUTE COLLEGE requires a PART-TIME ARCHIVIST

Ideally a qualified librarian, archivist or teacher, to develop the Early Childhood Collection as an information centre, a teaching resource and a source of material for research.

The initial appointment will be for one year only but is likely to be extended on a year-to-year basis. This is a half normal working time appointment and the successful applicant will be expected to work for 17½ hours a week at a commensurate salary of £6,232.50. In other respects he/she will be subject to NJC/APTC increments, conditions of service and holidays, currently 22 days 1988.

Further particulars of the post can be obtained from the College Senior Administrative Officer to whom applicants should apply to:

Fröbel Institute College, Grove House, Southampton Lane, London SW15 5PJ. Tel. 01-872 2242.

EDUCATIONAL REPRESENTATIVES North East London

Would you be capable of promoting books from Hamish Hamilton and Viking Kestrel to primary schools and librarians in secondary schools? The work is for 30 weeks of the year in term-time only and requires use of your own car and telephone.

You should be articulate, persuasive and interested in children's books, which are enjoying a boom in schools owing to the growing interest in the use of 'real books' for teaching reading.

Write for full details and job description to:

Lorna Tennant,
The Penguin Group,
21 Wrights Lane,
London W8 5TZ.
Tel: 01-838 2200

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

Group Assets

MISCELLANEOUS

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

LONDON SE21

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

DEVON

Schools Programme Manager

As the national leader in the Schools Programme field, you will be responsible for promoting health education in schools and FE colleges, with an annual budget currently valued at over £1 million. The work will involve managing the HEA's Young People's Programme, consisting of a variety of innovative curriculum development and related projects based in Universities and elsewhere. You will also provide support for other HEA programmes (e.g. on AIDS, smoking, heart disease, alcohol and drug abuse), will liaise closely with LEAs, HM and DES, and will be responsible for the work of a small team. Some travelling from London will be involved. Extensive experience in school health education as an LEA adviser, advisory teacher, or at a senior level within a school or college is essential. Good communication skills are essential especially for the promotion of the HEA's activities to the media.

Schools Programme Officer

In this position you will assist the Programme Manager in devising an effective programme to promote health education in schools and FE colleges; and will be responsible for a delegated area of the programme, probably related mainly to schools. The salary will be on the scale £13,219 - £15,789 inclusive. (Pay award pending). Letters of application, accompanied by a CV (to include both home and work telephone numbers) should be sent to arrive by October 26th to: Ralph McKee, Personnel Manager, Health Education Authority, 78 New Oxford Street, London WC1A 1AE. Interviews will be held at the HEA on 28th

E.S.L. SERVICE
Cradon Teacher's Centre, Kilton Road, London E13

CO-ORDINATOR
Scale of post: Incentive Allowance 'E' (£4200)
Required: January 1988/as soon as possible

A teacher with considerable knowledge and experience of the teaching of English as a second language to Bilingual Pupils/Students. The post involves responsibility for managing a large team of E.S.L. Teachers, as well as in-service training for E.S.L. and mainstream teachers. An ability to relate to a wide range of staff and situations is essential. Previous applicants will be considered.

LONDON ALLOWANCE £1215

Application forms/further particulars (s.a.s. please) available from The Director of Education, to whom completed forms should be returned by 27/10/87.

Education Office,
379/383 High Street,
Stratford, E15 4RD.
32368



OUTDOOR EDUCATION

continued

DEVON
NORTH DEVON LEARNING CENTRE
Multi-Activity Centre
Activities include: Rock Climbing, Abseiling, Canoeing, Kayaking, Windsurfing, Archery, Assault Course, Orienteering, Survival Training, First Aid, etc. All Sessions are held at the Devon Training Centre, Exeter. Fully Qualified Staff. All Sessions are held at the Devon Training Centre, Exeter. Fully Qualified Staff. All Sessions are held at the Devon Training Centre, Exeter. Fully Qualified Staff.

FIELD STUDIES COUNCIL

TUTORING ECOLOGY, BIOLOGY AND ENVIRONMENTAL STUDIES
is required at JUNIPER HALL FIELD CENTRE, Park Hill, Surrey.

Applicants should have an honours degree in Biology or Environmental Science, with a minimum 2:1. An advertisement will be sent to all those who have applied to the Council through the 'A' level.

Salary: £6,109 - £6,024 plus Iron board and lodging.

Preferred starting date: early January 1988. Closing date for applications: Friday 13th November 1987.

1193331 880000

LONDON WB

THE AMATEUR HOWING ASSOCIATION INVITES APPLICATIONS FOR THE POST OF NATIONAL ROWING COACH

Candidates should have experience in coaching on the river and be able to instruct a minimum of 5 years' EFL. The successful candidate is likely to have teaching experience and a PE or related qualification.

The successful candidate will be expected to work from the R.A. Howing Club, which is situated in the heart of the river. A car will be provided.

Applications should be sent in confidence to the Secretary, Amateur Rowing Association, 100, Strand, London WC2R 0ET. Closing date: 15th October 1987.

115881 080000

English as a Foreign Language

EAST SUSSEX
Permanent teacher required by a Secondary School of English, Hastings.

Contact the Principal, (0424) 760022, (115330) 700000

BOURNEMOUTH

TEACHER/TEACHER TRAINEE
International Teaching and Training Centre
Applications for qualified English Language teachers with a minimum of 5 years' EFL. The successful candidate is likely to have teaching experience and a PE or related qualification.

Further details from: ITTC, 674, Wimborne Road, Bournemouth, Dorset, BH2 9EG. Tel: 0202 531355. 1205501 700000

ELT REPRESENTATIVES

Representatives ELT is seeking experienced teachers with a minimum of 5 years' EFL. The successful candidate is likely to have teaching experience and a PE or related qualification.

Further details from: ELT, 674, Wimborne Road, Bournemouth, Dorset, BH2 9EG. Tel: 0202 531355. 1205501 700000

LONDON
R.A. Certificate in T.E.F.L. Full-time and part-time courses throughout the year.

For full details write or phone: The T.E.F.L. Centre, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

SHEDFIELD

SHEDFIELD CITY POLYTECHNIC
Are you a graduate or teacher interested in working overseas? Why not join our team of teachers to teach English to students? We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Open Polytechnic Distance Learning programme. Block teaching to Certificate in English (TEFL), Diploma in English (TEFL), and Diploma in English (TEFL). Further details from: SHEDFIELD CITY POLYTECHNIC, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

For full details write or phone: The T.E.F.L. Centre, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

V.S.O.
Places are V.S.O. diploma in under Overseas Appointments. 1193331 880000

English as a Second Language

BUCKINGHAMSHIRE COUNTY COUNCIL
AVENING VALLEY MULTI-CULTURAL CENTRE
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: BUCKINGHAMSHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

CAMBRIDGESHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: CAMBRIDGESHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HOUSLOW SCHOOLS' LANGUAGE UNIT
Smallberry Green Centre, Middlesex. Tel: 0181 851 1500.

HERTFORDSHIRE

COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: HERTFORDSHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

LANCASHIRE COUNTY COUNCIL
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: LANCASHIRE COUNTY COUNCIL, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

OVERSEAS POSTS

INDONESIA
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: INDONESIA, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 700000

ITALY
We are looking for experienced teachers to teach English to students. We are looking for experienced teachers to teach English to students.

Further details from: ITALY, 100, Strand, London WC2R 0ET. Tel: 0202 531355. 1205501 7

